Finding of No Significant Impact (FONSI) Control
of Common Reed
(*Phragmites australis*)
at
Joint Base Langley-Eustis, Fort Eustis, Virginia

Pursuant to the Council on Environmental Quality Regulations (40 CFR Parts 1500-1508) for implementing the procedural provisions of the National Environmental Policy Act (42 U.S.C. 4321 et seq.) and Title 32 of the Code of Federal Regulation Part 989 a Supplemental Environmental Assessment (SEA) was prepared by Joint Base Langley-Eustis, Fort Eustis, to evaluate the potential environmental effects associated with the proposed project to control of an invasive plant species the common reed (*Phragmites australis*) at Fort Eustis, Virginia.

Background

Fort Eustis comprises approximately 7,900 acres of land of which approximately 3,000 acres are tidal and non-tidal wetlands. The common reed (*Phragmites australis*) continues to expand into more wetlands areas where it out competes native wetlands species thereby reducing the ecological and overall value of these areas. Biodiversity and functions of wetlands are reduced, aesthetics become marred, training opportunities are degraded and security along the installation boundaries becomes compromised. Additionally, a shoreline stabilization project recently initiated to prevent erosion of Harrison Road (located along the James River) could be compromised by *Phragmites australis* expansion. Stabilization of Harrison Road includes planting of *Spartina spp.* to reduce the erosional effect of wave action on the road. Additionally, the *Spartina* marsh includes the added benefit of aesthetics, improvement of sport fishing opportunities and recreational wildlife watching. Common reed expansion into this new marsh could remove the *Spartina spp.*

Proposed Action

Fort Eustis proposes to continue controlling common reed with aerial spraying of herbicides as the primary method with follow-up treatment with herbicides via ground techniques where aerial spray is not feasible. This action could involve one of several herbicides authorized for use in aquatic environmental including imazypyr and glysophate-based herbicides (and possibly other herbicides registered by the U.S. Environmental Protection Agency for use in aquatic environments). Furthermore, this action could include augmentation with physical control methods such as prescription fires, excavation, retention of high water levels and re-planting with native vegetation when feasible/practical. However, under this action these non-chemical methods are not likely to be used alone, and the frequency would be limited based on unique installation conditions.

Alternative Actions

1. Control Exclusively By Prescription Fires. This alternative was deemed unrealistic for several reasons. Controlled burns are limited by weather conditions and land use requirements. Favorable weather conditions cannot be planned more than one or two days in advance and sufficient time needed to complete the project may not be available. Furthermore, the large areas involved would require several burns and thus involve a longer timeframe as well as require considerable manpower. Based on the amount of area to be burned, considerable smoke may generated that otherwise could be disruptive to routine military operations or affect Newport News communities. Some of the areas remain too wet to facilitate burning. Furthermore, the literature indicates that burning as the only method encourages more active growth of common reed. This alternative was not considered further.

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
SEP 2012		**00-00-2012 to 00-00-2012**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Supplemental Enviromnentul Assessment for Control of Common Reed (Phragmites ausralis) at Joint Base Langley-Eustis, Fort Eustis, Virginia	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **733 Mission Support Group/ Civil Engineer Division,Fort Eustis,VA,23604**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**190**	

2. Reduction by Excavation. Excavation of areas containing common reed would be logistically unfeasible and extremely expensive. Many areas would not be conducive to or accessible by heavy operation equipment. Additionally, the hydrologic continuity would be greatly altered. This type of control measure would require obtaining appropriate permits from respective federal, state and local authorities. This alternative was not considered further.

3. No action alternative. This alternative constitutes a continuation of existing conditions of the affected environment, without implementation of the proposed action. Under the no action alternative, Fort Eustis would not implement any control methods to manage common reed on the installation. This would result in further expansion of the plant that would further degrade wetlands, reduce biodiversity, increase risks of wildland fires and other negative consequences.

Factors Considered in Determining that No Environmental Impact Statement is Required

The EA, which is incorporated by reference into this Finding of No Significant Impact, examined potential direct, indirect, and cumulative effects of the proposed action and the no action alternative on environmental resources.

The results of the EA found that certain environmental resources and conditions (air quality, water quality, aesthetics, wetlands, cultural resources, wildlife, forested lands, hazardous materials, waste generation, human health and safety, protection of children, Environmental Justice, noise, and installation restoration program sites) would not be affected by the proposed action. Implementation of the proposed action would not result in significant impacts to these resources.

Conclusion

The proposed project of controlling common reed primarily via aerial spraying (with supporting treatments via ground application and augmented with physical techniques) was analyzed by considering environmental resource areas that could be affected and by comparing to a no action alternative. Impacts to the natural environment as well as human health and safety were determined to be minimal while the quality of existing wetlands would be greatly enhanced in the long term following control of common reed.

Because no significant environmental impacts will result from this proposed project, preparation of an Environmental Impact Statement will not be required.

Public Comment

Interested parties were invited to review and comment on this FONSI and EA within 30 days of publication of the Notice of Availability in the *Daily Press*. Copies of the EA are available at Groninger Library (Bldg. 1313, Fort Eustis), Grissom Public Library (366 DeShazor Drive, Newport News, VA) and Christopher Newport University Library (1 University Place, Newport News, VA). Comments were to be provided to Mr. Tim Christensen by mail at the 733 Mission Support, Civil Engineer Division, 1407 Washington Blvd, Fort Eustis, VA 23604 and by email at Timothy.P.Christensen@mail.mil.

D. Kirk Wetherington

THOMAS R. WETHERINGTON, Colonel, USA
Commander, 733 Mission Support Group

Date: 25 Sep 12

Supplemental Environmental Assessment for Control of Common Reed (*Phragmites australis*) at Joint Base Langley-Eustis, Fort Eustis, Virginia

September 2012

Prepared by:

Timothy P. Christensen
Environmental and Natural Resources Specialist
Environmental Element
Civil Engineer Division
733 Mission Support Group
Fort Eustis, VA 23604

Table of Contents

EXECUTIVE SUMMARY

Several invasive plant species exist at Fort Eustis that cause impacts to military operations and degrade natural habitats. Common reed (*Phragmites australis*) is one of the more significant invasive species that rapidly out-competes native wetland vegetation and encroaches into some upland areas. It forms dense stands that reduce the biodiversity, degrades safety in some training areas (by obscuring line of sight for vehicle drivers), increases risks of wildland fires, impacts force protection, disrupts certain recreational activities and could impact the artificial wetlands constructed along Harrison Road to reduce erosion of that road. An estimated 600 acres of land on Fort Eustis is affected by common reed.

Control of common reed was initiated in 2004 following completion of an Environmental Assessment (EA). That EA evaluated the potential environmental effects of techniques associated with controlling this invasive plant. It concluded that no significant impacts would occur. Subsequently, a Finding of No Significant Impacts (FONSI) was approved.

The EA was developed in accordance with the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality (CEQ) Implementing Regulations Title 40 Parts 1500-1508) and U.S. Army policies (Title 32 of the Code of Federal Regulations Part 651). The purpose of this document is to inform decision makers and the public of the likely environmental consequences of the proposed action and alternatives. Since the EA was completed in 2004 several regulatory and biological resource changes have occurred that required a Supplemental Environmental Assessment (SEA). The purpose of this SEA was to assess the effects of common reed control techniques in relation to these changes. The SEA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality (CEQ) Implementing Regulations Title 40 Parts 1500-1508) and U.S. Air Force polices (Title 32 of the Code of Federal Regulations Part 989

Several important changes have occurred since 2004. First, Fort Eustis and Langley Air Force Base (LAFB) is now a joint base, Joint Base Langley-Eustis, with the Air Force assuming responsibility for environmental matters on the installation. As such, environmental impact analysis of projects must follow U.S. Air Force policies. Second, the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) was recently listed as a federally endangered species under the Endangered Species Act. Third, bald eagles (*Haliaeetus leucocephalus*) have been delisted since 2007; however, they are afforded special protection under the Bald and Golden Protection Act and promulgated federal regulations. Fourth, as of 31 October 2011, applications of pesticide must that enter or could enter surface waters must be accomplished in accordance with the Commonwealth of Virginia Pollutant Discharge Elimination System (VPDES) General Permit (VAG87). These factors constitute the drivers for a SEA. The SEA focuses primarily on these factors; other environmental issues evaluated in the 2004 EA remain valid because the control methods used in 2004 and in the future remain consistent. The only major difference concerns the pesticides used. Glysophate was used in 2004; however imazapyr-based pesticides are

available. Regardless, application methods (primarily aerial spray) and quantities used are similar and are registered for use in aquatic systems against common reed by the U.S. Environmental Protection Agency.

PROPOSED ACTION

Fort Eustis would continue to control common reed with aerial spraying of herbicides as the primary method with supporting ground treatment techniques where aerial spray is not feasible. This action could involve one of several herbicides authorized for use in aquatic systems including imazypyr and glysophate-based herbicides (and other herbicides registered by the U.S. Environmental Protection Agency for use in aquatic environments). Furthermore, this action could include augmentation with physical control methods such as prescription fires, excavation, retention of high water levels and re-planting with native vegetation when feasible/practical. However, under this action these non-chemical methods are not likely to be used alone and relatively infrequently based on unique installation conditions.

ALTERNATIVE ACTIONS

1. Control Exclusively By Prescription Fires. This alternative was deemed unrealistic for several reasons. Prescription fires are limited by weather conditions, accessibility and land use requirements. Favorable weather conditions cannot be planned more than one or two days in advance and sufficient time needed to complete the project may not be available. Furthermore, the large areas involved would require several fires and thus involve a longer timeframe as well as require considerable manpower. Based on the amount of area to be burned, considerable smoke may generated that otherwise could be disruptive to routine military operations or affect Newport News communities. Some of the areas remain too wet to facilitate burning. Furthermore, the literature indicates that burning as the only method encourages more active growth of common reed. This alternative was not considered further.

2. Reduction by Excavation. Excavation of areas containing common reed would be logistically unfeasible and extremely expensive. Many areas would not be conducive to or accessible by heavy operation equipment. Additionally, the hydrologic continuity would be greatly altered. This type of control measure would require obtaining appropriate permits from respective federal, state and local authorities. This alternative was not considered further.

3. No Action Alternative. This alternative constitutes a continuation of existing conditions of the affected environment, without implementation of the proposed action. Under the no action alternative, Fort Eustis would not implement any control methods to manage common reed on the installation. This would result in further expansion of the plant that would further degrade additional wetlands, reduce biodiversity, compromise safety and security, increase risks of wildland fires and other negative consequences.

1.0 Description of the Project.

The US Air Force proposes to continue to conduct aerial spray of common reed (*Phragmites australis*) at Fort Eustis with the intent of controlling the spread of this non-native invasive plant species. Aerial spray will be the primary means of controlling common reed; however, supporting ground spraying methods and limited augmentation with physical methods (such as prescription fires, re-planting, excavation of soils, etc) when feasible. Fort Eustis constitutes approximately 7,900 acres of land of which an estimated 3,000 acres are tidal and non-tidal wetlands. Recent improvements in GIS data, delineation of wetland areas and erosion by storm events/possible rising sea levels represent acreage changes from 8,228 total acres and 2,212 wetland acres noted in the 2004 EA. Common reed continues to expand into wetlands areas where it out-competes native wetlands vegetation thereby reducing the ecological and overall value of these areas. Biodiversity and functions of wetlands are reduced, and the utility for training and security becomes compromised. Monocultures of large, dense stands of common reed are not aesthetically pleasing. Additionally, a shoreline stabilization project to prevent erosion of Harrison Road (located along the James River) could be compromised by common reed expansion. Stabilization of Harrison Road included planting of *Spartina spp.* to reduce the erosional effect of wave action on the road. Additionally, the *Spartina* marsh includes the added benefit of aesthetics, improvement of sport fishing opportunities and recreational wildlife watching. Common reed expansion into this new marsh could out-compete the *Spartina spp.*

The project involves implementing measures to reduce the significant stands of common reed that are degrading wetlands sites and those threatening the original Harrison Road stabilization project. Several control measures were evaluated with aerial spray being the primary means of control. Affected acreage ranged from 500 acres in 2004 to 600 acres currently based on limited control opportunities in the past. Approximately 600 acres would be treated over time. Treatments would occur between August and October. Efficacy of treatments are then monitored and evaluated with follow-on actions subsequently designed as needed. This may involve subsequent herbicide treatments in subsequent years but the need is expected to be reduced over time. This time period is the ideal to control common reed with herbicide because the plant continues to grow in this period. Other plants begin entering dormancy and thus reducing damage to other plant species.

Aerial spraying will involve rotor-wing aircraft (such as a Bell OH-58, UH-12 Raven or similar helicopters equipped with 30-gallon capacity spray tanks. The applicator will be a Virginia certified and licensed aerial pesticide applicator. The herbicide will be that containing glysophate or imazayr based herbicide (or possibly other herbicides registered for use in aquatic systems against common reed). Typically, a quantity of 4-6 pints of herbicide will be used to treat one acre; however, actual amounts will be determined based on the specific herbicide label.

These types of herbicides are intended to come in contact with the exterior surfaces of the plant (such as leaves and stems). It functions as a systemic herbicide that eventually reaches the root system to destroy the plant. In this case it remains in the environment for a short period of time.

Neither glyphosate nor imazapyr has no herbicidal or residual activity in the soil and therefore provides no lingering residual weed control. This application contrasts to pre-emergent herbicides that remain viable in the soil for lengthy periods of time to preclude seed germination.

Monitoring herbicide use and effectiveness is the keystone aspect of the Fort Eustis Integrated Pest Management Plan. Treated areas will be monitored following spraying to determine effectiveness.

This will occur primarily through visual means during peak growing seasons. Extent of re-growth of common reed (or lack of) and that of desired vegetation will be documented. This component of the action contributed to managed use of herbicides.

Appropriate measures will be utilized to prevent drift of herbicide beyond the targeted areas in accordance with manufacturer instructions. The responsibility to prevent spray drift beyond the targeted area rests with the applicator who must be state certified and licensed for such work.

The following drift prevention requirements will be met as well as specific label requirements:

1. The distance of the outer most nozzles on the boom must not exceed % the length of the rotor of the aircraft.

2. Nozzles will always point backward parallel with the air stream and never pointed downwards more than 45 degrees (or as determined by Virginia requirements).

3. Apply the largest herbicide droplet size that provides sufficient coverage and control Nozzle orientations pointing backward and parallel to the air stream produce larger droplets than other nozzle orientations. This reduces drift potential.

4. Use high flow rate nozzles to apply the greatest practical spray volume.

5. Use lower spray pressures recommended for the nozzle (higher pressure reduces droplet size).

6. Use the minimum number of nozzles that provide uniform coverage.

7. Applications will not be made more than ten feet above the top of the tallest plants unless a greater height is necessary for aircraft safety.

8. Applications will occur when wind speed is between 2-10 miles per hour.

9. Applications will be avoided during hot and dry weather conditions.

10. Applications will be avoided during temperature inversions. This condition is representative of increasing temperatures with altitude and tends to occur during nights of limited cloud cover and light to no wind. While these conditions begin around sunset they may exist into the morning. Temperature inversion restricts vertical air mixing causing small suspended droplets to remain as a concentrated cloud.

11. Applications will be avoided during period of fog.

While aerial spray will be the primary method some limited ground spray activities may be used to augment the aerial spray if feasible.

The project does not involve any construction or demolition of facilities nor does it involve any excavation of soil in upland areas or sediments within wetlands or sub-aqueous lands.

Augmentation aerial spray with ground spraying and physical techniques may be utilized to a lesser extent. This comprises cases where aerial spray is not feasible due to accessibility, safety or proximity to desirable vegetation. Ground spraying would occur via 200-gallon vehicle-mounted power sprayer if the common reed can be accessible from road networks. In cases where road access is not possible, 4-gallon backpack manual sprayer could be utilized.

2.0 Purpose and Need.

The purpose of the proposed project is to enhance and restore wetland habitats impacted by common reed. This involves controlling existing stands of common reed to improve the biodiversity of wetlands, prevent expansion other wetland areas including the Harrison Road stabilization area, reduce risks of wildland fires, reduce safety and security/force protection issues and improve the land use value of affected areas at Fort Eustis. Executive Order 13112 (dated 3 February 1999) requires that Department of Defense installations control invasive plant species. Continued colonization and expansion of common reed reduces the biological diversity and functions of wetlands, reduces recreational opportunities, mars aesthetics, hampers security along installation boundaries, and degrades training opportunities. Common reed out competes native vegetation and does not serve as an adequate food source for most native wildlife. Microhabitats utilized by smaller vertebrate organisms and invertebrate species are degraded or eliminated.

3.0 Alternatives Considered.

This SEA considered several alternatives for controlling common reed to include a No Action Alternative.

Alternatives considered but eliminated.

1. Common Reed Control Exclusively By Controlled Burn. This alternative was deemed unrealistic for several reasons. Controlled burns are limited by weather conditions and land use requirements. Favorable weather conditions cannot be planned more than one or two days in

advance and sufficient time needed to complete the project may not be available. Furthermore, the large areas involved would require several burns and thus involve a longer timeframe as well as require considerable manpower. Based on the amount of area to be burned, considerable smoke may generated that otherwise could be disruptive to routine military operations or affect Newport News communities. Some of the areas remain too wet to facilitate burning. Furthermore, the literature indicates that burning as the only method encourages more active growth of common reed. This alternative was not considered further.

2. Common Reed Reduction by Primarily by Excavation. Excavation of areas containing common reed would be logistically unfeasible and extremely expensive. Many areas would not be conducive to heavy operation equipment. Additionally, the hydrologic continuity would be greatly altered. This type of control measure would require obtaining appropriate permits from respective federal, state and local authorities. This alternative was not considered further.

Alternatives Considered.

1. Proposed Action (Preferred Alternative): Common Reed Control Primarily via Aerial Herbicide Spray. Under this alternative, common reed control would be accomplished primarily through aerial application using an herbicide with the active ingredient glysophate (glysophate, N-phosphonomethylglycine in the form of its isopropylamine salt), imazapyr or other pesticide registered for use in aquatic systems and targeting common reed. Most areas requiring treatment will involve aerial spray. In some cases where aerial application may not be feasible or safe, then ground application of the herbicide (and possibly physical methods such as small-scale prescription fires, etc) will be used.

2. No Action Alternative. This alternative would not involve any treatment of common reed stands by any methods. While it does not support meeting requirements delineated in Executive Order 13112, it will be used to compare the preferred alternative.

4.0 Affected Environment and Environmental Consequences.

4.1 General.

4.1.1 Project Location. This project will occur on Joint Base Langley-Eustis located at Fort Eustis, Virginia. Fort Eustis is located within the Chesapeake Bay watershed in southeastern Virginia. Specifically the installation is located on the Lower Peninsula adjacent to the City of Newport News and James City County. The installation's shoreline borders the James River on the west and the Warwick River on the east. See Figure 1 for the map depicting the installation's geographical position.

4.1.2 Physical Description of Fort Eustis. Fort Eustis constitutes approximately 7,900 acres of land and is divided into two primary areas, the main post (cantonment area) and Mulberry Island. Main post comprises the majority of tenant activities, soldier billets, family housing and support

facilities. This includes an elementary school, child development center, library, Post Exchange, Commissary, gymnasiums, theater, hospital and museum. Mulberry Island primarily includes training areas, weapons ranges, and Felker Army Airfield. The James River Reserve Fleet (JRRF) which is a Department of Transportation organization leases land and operates a pier facility on the James River from Mulberry Island. Mulberry Island comprises flat landscapes and wetlands varying from sea level to approximately ten feet in elevation. Natural resources existing at Fort Eustis include soils, surface waters, wetlands, forested land and wildlife. Much of this area includes forested riparian habitat, tidal wetlands, non-tidal wetlands (to include an estimated 80 acres of vernal pools and isolated freshwater wetlands) and upland habitat. Most of the common reed stands are associated with tidal wetlands on Mulberry Island. Some common reed does occur on the periphery of the Main Post such as wetlands bordering Taylor Avenue across from Eustis Lake and along portions of the Warwick River. Additionally, some common reed exists in the 3d Port facility area. Forested areas comprise approximately 2,782 acres in the Mulberry Island area. Fort Eustis is comprised of two soil types: low river terrace and wetland soils (hydric), and low coastal plain upland soils. An estimated 75% are low terrace and wetlands soils. Fort Eustis is a non-industrial facility primarily associated with administrative operations as well as logistics and transportation training.

4.1.3 Activities on Mulberry Island. Military personnel and Department of Defense civilians conduct various activities on Mulberry Island. This primarily includes training and weapons qualification as well as rotor wing aircraft operations at Felker Army Airfield. Additionally, a recreational golf course exists on Mulberry Island as does the JRRF as mentioned previously. Mulberry Islands does not contain soldier billets, family housing facilities or community support facilities. Other structures and facilities that exist include Range Operations and an element of the US Army Aviation Technology Directorate. Range Operations manages and controls operations taking place within training areas and weapons ranges. The area is accessed via several paved road networks predominately Mulberry Island Road, Harrison Road, Back River Road and Wilson Avenue.

4.1.4 Listed species at Fort Eustis. No federally listed species occur on Fort Eustis. The Atlantic sturgeon (listed as endangered in February 2012) occurs in the James River. American bald eagles are considered threatened in Virginia and occur on Fort Eustis.

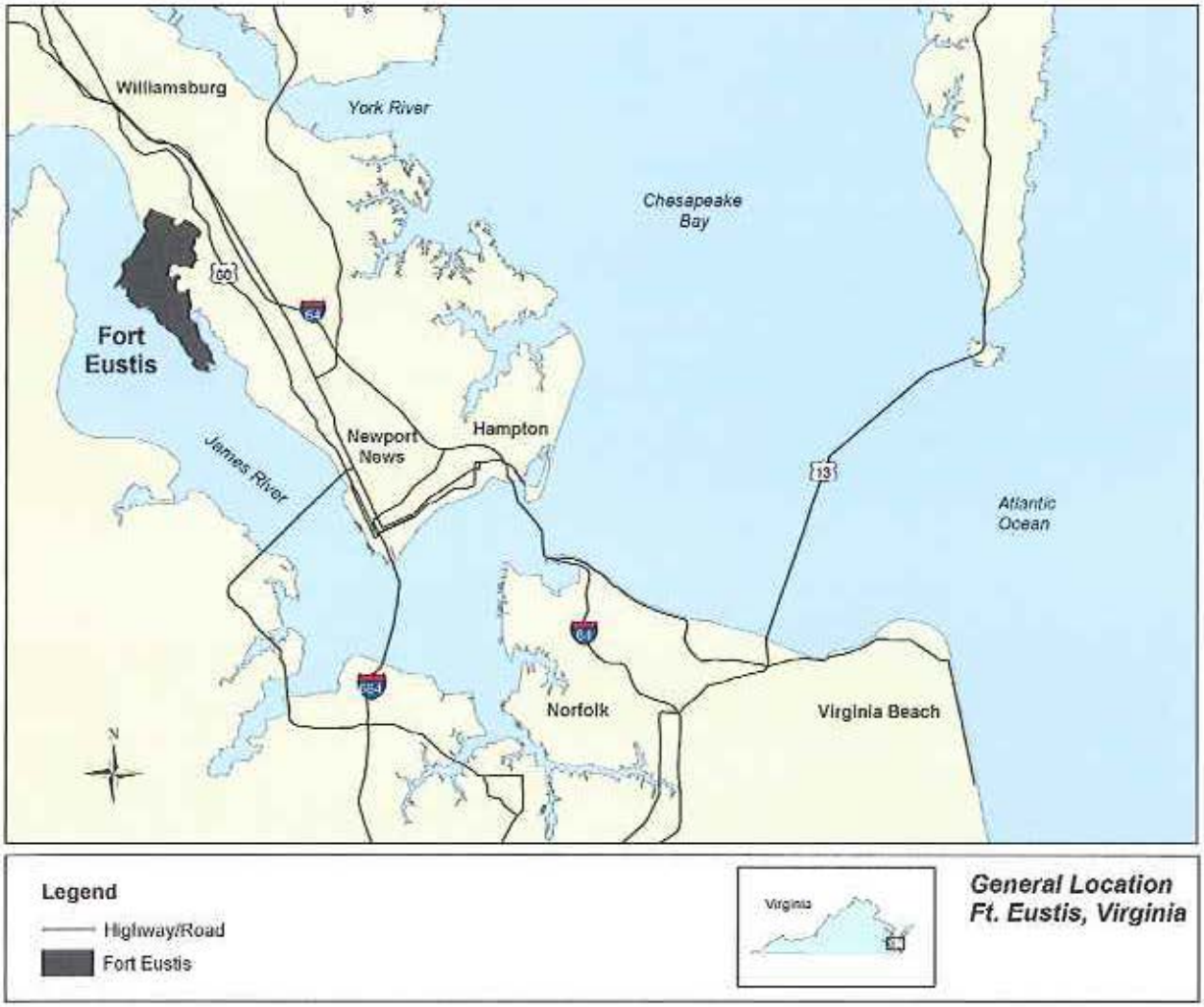


Figure 1: Fort Eustis Geographical Location in Virginia

4.1.5 Common reed on Fort Eustis. Fort Eustis natural resources staff estimated that at least 600 acres of land is colonized by the invasive grass common reed (*Phragmites australis*). This estimate is depicted in Figure 2. This plant impacts the military mission in a number of ways including serving as a wildland fire risk, compromising personnel safety and force protection/security (by obscuring line of sight along training area roads and adjacent operational areas) and degrading wetland areas (by reducing wildlife and flora diversity) that precludes sustainability of land areas. Left unmanaged, this vegetation will expand and encroach into additional areas.

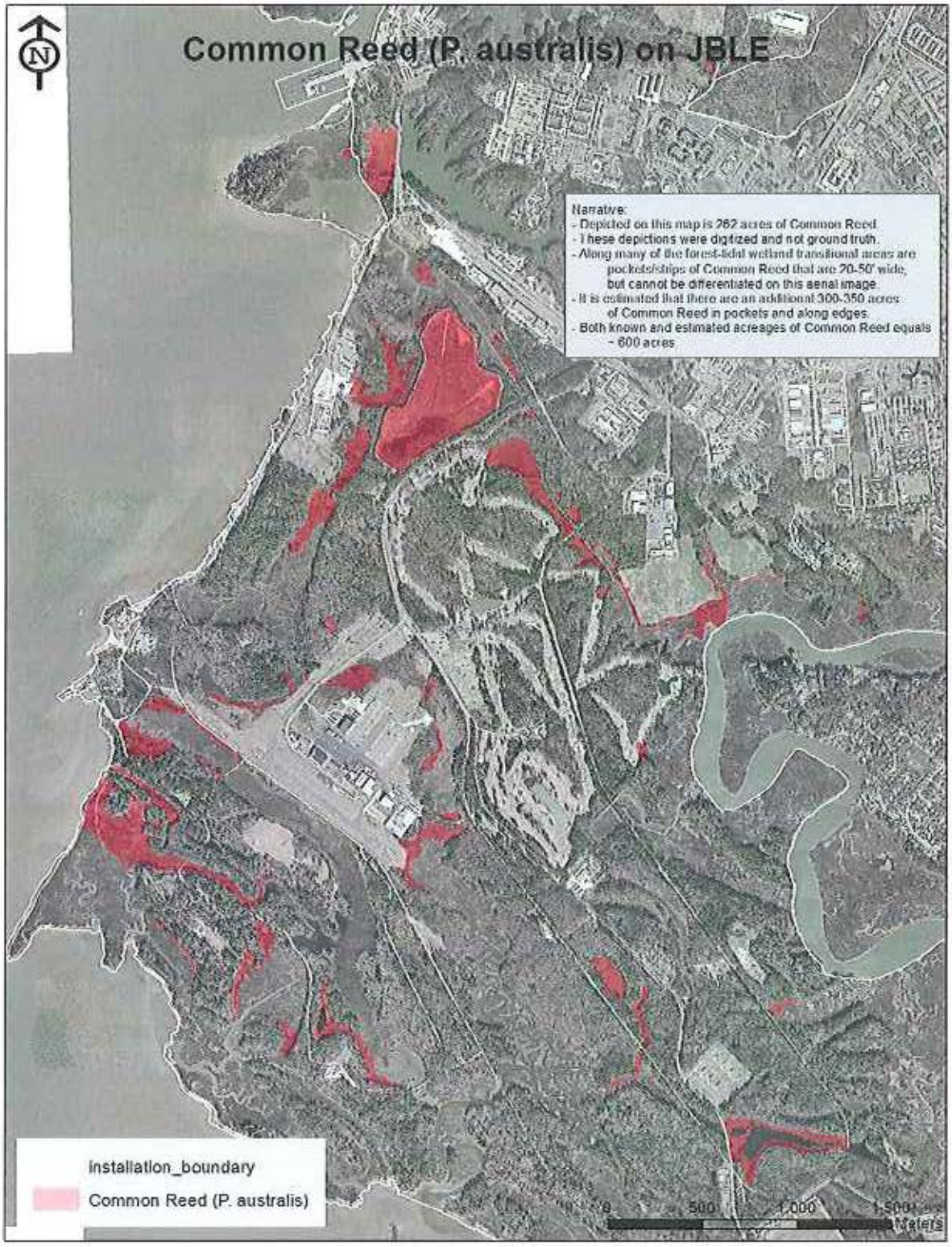


Figure 2: Estimated locations and acreage of Common Reed at Fort Eustis

4.1.6 Overview

Consistent with guidance issued by the Council on Environmental Quality and U.S. Air Force policy, this SEA focuses specifically on potential impacts relating to the Atlantic sturgeon, bald eagles, proposed herbicides and compliance with Commonwealth of Virginia General Permit VAG87 (General Permit for Discharges Resulting From Application of Pesticides to Surface Waters of Virginia). These issues did not exist when the original EA was prepared in 2004. Other environmental issues were addressed in the 2004 EA and that assessment remains consistent with the proposed action noted for this SEA.

4.1.7 Proposed pesticides (herbicides) and related regulatory and use requirements.

4.1.7.1 General. Glysophate was the active ingredient of the pesticide Rodeo discussed in the 2004 EA. This pesticide remains a vial tool for common reed control; however, several other pesticides are also registered for use against common reed. This includes the active ingredient imazapyr of the commercial pesticide products such as Habitat and Polaris. All three products are registered by the U.S. Environmental Protection Agency for use in aquatic systems. The labels for the commercial pesticides discussed above cite their use against common reed. Since these are authorized, registered pesticides for use in aquatic systems, their impacts on the environment is considered minimal when used in accordance with the product label. Aerial and ground spraying treatments are performed by certified applicators in accordance with the product labels.

4.1.7.2 Pesticides as hazardous materials and hazardous waste.

4.1.7.2.1 Pesticide characteristics. These pesticides are specifically designed for dispersal into the environment particularly aquatic environments. They are non-flammable and non-volatile. Hazardous decomposition and hazardous polymerization do not occur. Subsequently, these pesticides do not pose physical hazard risks to personnel operating within Mulberry Island during or after spraying operations. Skin and eye irritation generally does not occur in small incidental exposures. These pesticides generally have a low toxicity for oral and dermal exposures associated with small exposures and they are not known to be carcinogenic, teratogenic or mutagenic. Furthermore, neither imazapyr nor glysophate are listed by the US Environmental Protection Agency (EPA) as subject to Toxic Chemical Release Inventory (TRI) or Extremely Hazardous Substances (EHS) reporting under the Emergency Planning and Community Right To Know Act (EPCRA). Mixing of pesticides or transfer to spray tanks will occur either at the contractor's facility outside the installation boundary or at Felker Army Airfield. When such handling occurs at Felker Army Airfield, all appropriate spill prevention measures will be utilized in accordance with Fort Eustis policies. Such measures include (but not limited to) use of secondary containment, funnels, protection of drains, and avoidance of surface waters or storm drains. Additionally, the amount of herbicide to be used will be measured carefully to treat a given estimated acreage of common reed stands in accordance with the applicable label. Subsequently, all efforts will be made to use only what is needed. Any remaining herbicide will

be retained by the contractor for future use. Subsequently, no waste is expected to be generated and therefore not increase the volume of waste generated by Fort Eustis or create new waste streams.

4.1.7.2. 2 Human activity in relation to treated areas. Common reed stands are treated via aerial herbicide spray with supporting ground treatment methods as applicable. When feasible, treatment operations will occur during non-duty time frames such as weekends and holidays. Nonetheless, prior internal coordination is made to further reduce potential exposure before initiating these operations. Notifications are directed via chains of command, military police, public affairs and planning/coordination meetings. Appropriate coordination and notifications will be made prior to aerial or ground spraying. Fort Eustis Range Operations will preclude entry into military training areas containing common reed stands slated for treatment. Furthermore, stands of common reed are not areas used for recreational activities or military training. Subsequently, human health and safety is not expected to be compromised based on prior coordination, the small quantities used to treat affected areas, the low health and physical hazard risks associated with these products and that areas affected by common reed are not typically accessed.

4.1.7.2.3 Discharges of pesticides to surface waters. The Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Discharges Resulting from the Application of Pesticides to Surface Waters was established by 9VAC25-800. This general permit is for discharges from pesticides applied directly to surface waters to control identified pests (or applied to control pests near surface waters). The effective date for this general permit (Pesticide General Permit VAG87) is October 31, 2011 through December 31, 2013. Fort Eustis complies with this permit by implementing its Pesticide Discharge Management Plan.

Proposed action: Applying registered herbicides designed for aquatic systems to control common reed in accordance with labels along with sufficient planning and coordination will prevent generation of waste and significantly reduce hazards to applicators and the installation community. Compliance already exists with the General Permit VAG87 with the installation's Pesticide Discharge Management Plan. No significant impacts are anticipated from the type of herbicides considered and their application.

No action alternative. No impacts to personnel or the environment would occur nor would any increase in waste generation occur. However, by not controlling common reed, safety could be compromised by the reduction of line of sight and security when training in areas containing common reed.

4.1.8 Atlantic sturgeon.

4.1.8.1 General. On 6 April 2012 all U.S. populations of Atlantic sturgeon became subject to the Endangered Species Act. At that time five (5) Distinct Population Segments (DPS) were listed as endangered. Any Atlantic sturgeon originating from these populations could occur in the

James River which borders Fort Eustis. Chesapeake Bay DPS are thought to spawn in upstream areas of the James River. Spawning by populations in the mid-Atlantic region is thought to occur in the April-May timeframe. Because some stands of common reed exist along or near the James River (and Warwick River) shoreline, the potential for impact of controlling common reed on this species existed and warranted further evaluation.

4.1.8.2 Atlantic sturgeon activity in the James River. The National Oceanic and Atmospheric Administration provided information about this species in the James River as articulated in a letter to U.S. Army Corps of Engineers-Norfolk District dated 17 April 2012 (subject: Skiffes Creek Federal Navigation Project) as a response to Section 7 of the Endangered Species Act consultation prepared for the Fort Eustis project to dredge Skiffes Creek. Two aspects of the Atlantic sturgeon were considered here: (1) spawning and (2) movement in James River. Spawning in the James River is thought to occur in upstream reaches of the James River in the April-May timeframe. The adults appear to be absent from this river during the summer until about August when they move upstream past the fall line near Richmond, Virginia. As water temperatures decrease through late summer-early fall, the fish then disperse through down-river areas and move out of the river.

4.1.8.3 Herbicide use in relation to sturgeon movements in the James River. Herbicide treatment techniques to control common reed generally occur between August and October. This is the time frame that Fort Eustis would normally perform aerial and ground-based treatment projects. Subsequently, the spawning period would be avoided altogether; however, actual treatment is performed in accordance with the herbicide label as required by law. Furthermore, planning and execution of treatments must be accomplished in accordance with the installation's Pesticide Discharge Management Plan (which is required to meet compliance with the Commonwealth of Virginia's Pesticide General Permit VAG87). Consequently, direct spraying of open water would be avoided and drift minimized. This avoids direct discharges into the water column. It should be noted however, that both imazapyr (The Nature Conservancy, 2001) and glysophate have low toxicities to fish (Extension Toxicology Network, 1994). Aerial and ground treatment operations are normally performed once a year. Subsequently, the amount pesticide used is limited and restricted to specified monoculture stands of common reed.

Proposed action: Treatment of common reed with herbicides can only be accomplished in accordance with respective pesticide product labels. Direct spraying of open surface waters that do not contain common reed would be in violation and wasteful. This is further prevented by using only certified applicators certified in Virginia for control of pests associated with aquatic systems. Additionally, the proposed herbicides have low toxicity to fish and the timeframe for treatment and that of Atlantic sturgeon activity in the area of the James River adjacent to Fort Eustis are segregated. Consequently, no significant impact to the Atlantic sturgeon is expected.

No action alternative: No impact to the Atlantic sturgeon would occur.

4.1.9 Bald eagle.

4.1.9.1. General. The bald eagle was listed as endangered throughout the United States in 1978 (43 FR 6233). It was subsequently down-listed to threatened in 1995 (50 CFR Part 17) when the Chesapeake Bay bald eagle recovery population met its population and productivity objectives (USFWS 1990, 1995). The bald eagle was removed from the Federal ESA on August 8, 2007; however, it remains protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA), as well as Commonwealth of Virginia laws and regulations. The BGEPA and the MBTA continue to protect bald eagles from a variety of harmful actions and impacts.

4.1.9.2. Bald eagles documented at Fort Eustis. The first recorded eagle nest at Fort Eustis was documented in 1987 (NN8701) and became inactive in 2003. It was located along the James River shoreline near Marshy Point and was situated in a large loblolly pine in an area of scattered large pines and hardwoods. Another nest was built in the area west of the original nest in 2002 (NN0201), but fell in 2009. A new nest was found again in 2011 in the original nest tree of NN8701, now NN1001and remains active. The area has been secured from disturbance and an Eagle Management Area (EMA) has been established.

The second recorded nest, first discovered in 1996, was reported active in 1998 along Jail Creek near the southern tip of Mulberry Island. An EMA was immediately established around it. No young were produced in that nest. After 1998 it remained inactive for 4 years and fell from the tree in 2002. The tree is now dead. The nest was surrounded by expansive marshland designated as an impact area. Although activity is no longer restricted around that nest site, there is little disturbance due to its isolated location.

Another nest was located in 2003 along Jail Creek. Its location is just northwest of the site of the 1996/98 nest but it is not active. A newer nest was constructed in 2004 in a location just southeast of this site on the same island (NN0401), but fell in 2009. Nest NN0301 became active once again in 2009 and remains active. Two more recent nests were discovered in the impact area just west of Curtis point and along the Warwick River (NN0801 and NN0802). A fifth nest was found in 2009 and was active, but portions of the nest fell prior to nesting season completion and remained inactive during the 2009 nesting season.

A sixth nest was discovered in Training Area 17C, near Blows Creek (NN0601) in 2006. This nest was considered a Bird Airstrike Hazard (BASH) for Felker Army Airfield and was removed under permit in 2010. A new nest was built 150' south of the original nest and was active. The nest was again removed in 2011. Mitigation measures have been employed to prevent new nests from that area and a programmatic permit is being discussed with US Fish and Wildlife Service. These nests also have designated EMAs. During this time, another nest was built within 100' of the original nest and is currently active.

The seventh nest (NN0503) was found in 2009 northwest of Third Port on a portion of land owned by DOD, but is not utilized by military units. This nest remains active. A potential disturbance for two nests (NN0601 and NN1001) is the over flight by aircraft, because the nests are within the airfield approach and training zones. A former threat to the nests near Marshy Point was falling steel shot from a nearby duck blind. However, in the summer of 2003, the blind was abandoned and dismantled after coordination with the USFWS and consultation with the duck blind owner. In general, the nests are relatively secure at these locations due to the surrounding marsh and forested shoreline, the impact zone restrictions, and the limited access for training and other human activities.

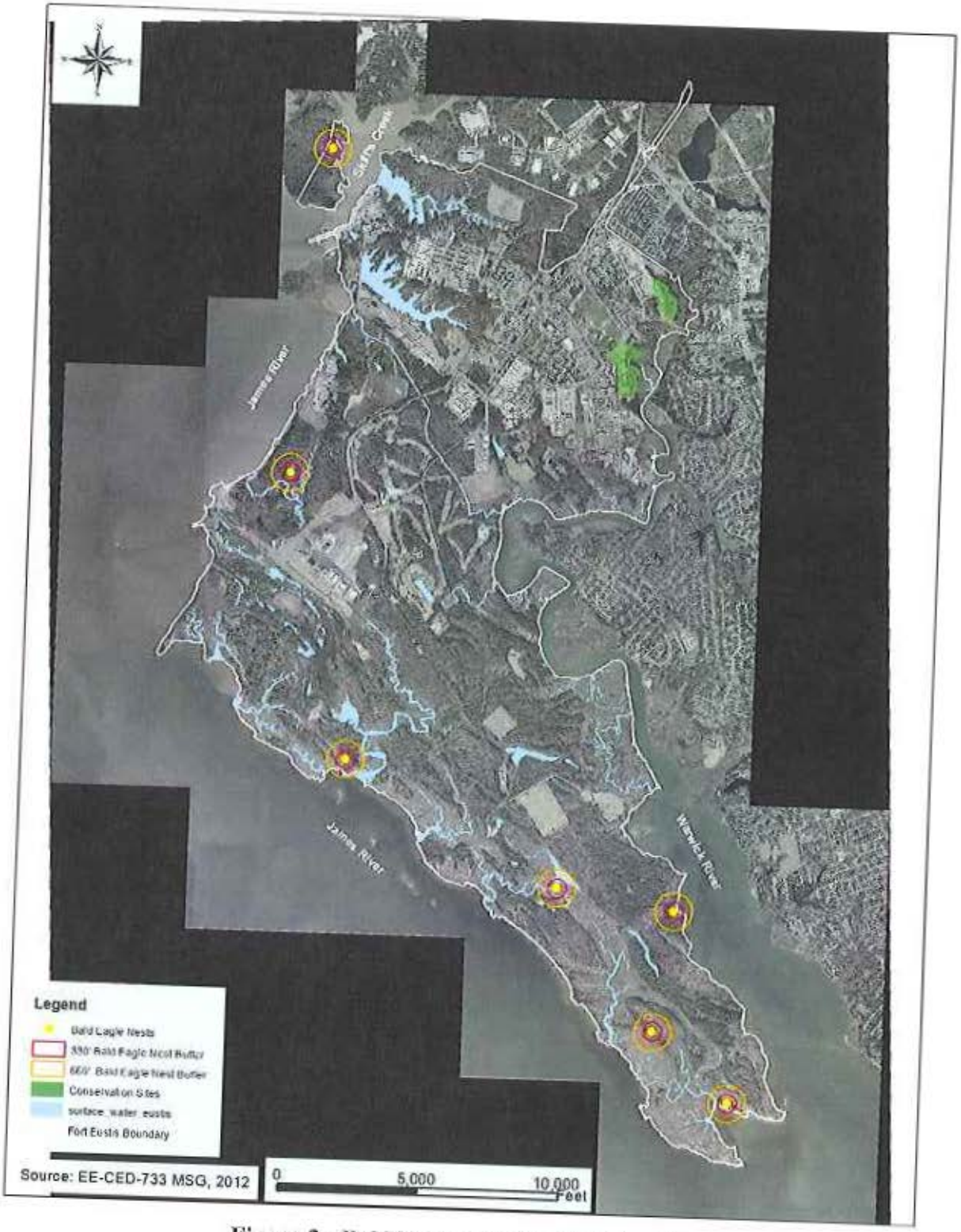


Figure 3: Bald Eagle Nest Sites at Fort Eustis

In 2008, Fort Eustis in conjunction with the U.S. Fish and Wildlife Service prepared a Bald Eagle Management Plan. The Plan was updated in 2012 as part of the revised Integrated Natural Resources Management Plan (INRMP). In conjunction with this revision, a map depicting all currently known active bald eagle nest sites was prepared (Figure 3). The Bald Eagle Management Plan includes protection of nest trees throughout the year and implements a 600-foot exclusionary buffer around the nest tree during the breeding season (December 15-July 15). This information allows planners, decision-makers and training managers to meet mission requirements while mitigating impacts to nesting bald eagles and their young.

4.1.9.3. Bald eagle activity in relation to herbicide treatment of common reed. Use of aerial and ground treatment techniques with herbicides is normally conducted between August and October. Fort Eustis natural resources staff maintains an inventory of bald eagle nest sites as part the Bald Eagle Management Plan and therefore have knowledge of locations and any unique situations. Consequently, these treatment operations occur outside the breeding season and therefore will not encroach into the 600-foot buffer of nest sites. Common reed stands are monoculture areas and do not afford habitat nor resources used by bald eagles.

Proposed action: Bald eagles are not expected to occur in areas proposed for herbicide treatment. Aerial spraying would be postponed if eagles were observed flying in the immediate areas slated for treatment because this would pose as a potential Bird Air Strike Hazard (BASH) for the pilot. The locations of nest sites are included in the herbicide application planning. As discussed in other sections of this SEA, drift of the given herbicide beyond the treatment areas must be minimized. Furthermore, installation natural resources staff has identified eagle nest sites though herbicide application would occur outside the breeding season. Direct spraying of nests/nest trees is not intended nor would any nest trees be removed in order to conduct spraying. Consequently, no significant impact on bald eagles is expected from this action.

No action alternative: Lack of control of common reed would promote the expansion and overtime decreasing foraging areas for bald eagles.

4.1.10 Other environmental and natural resource issues addressed in the 2004 EA.

4.1.10.1. General. The primary difference between the proposed action in the 2004 EA and this SEA is the types of herbicides used and an increase in common reed acreage. Glytsophate-based herbicides (such as the product Rodeo) were evaluated in the 2004 EA. This type of herbicide is still a valid herbicide; however, other commercial herbicides registered for use in aquatic systems and used to control common reed are available. These are primarily imazapyr-based pesticides such as the products Habitat and Polaris. The type of aircraft and ground vehicles used and the amount of hours involved remain very similar to what was evaluated with 2004 EA. Supporting physical control methods (such as prescription fires, excavation, etc) were included in the 2004 EA and remain as part of the arsenal in controlling common reed. However, their use is expected to be more limited with aerial spray being the primary method. The 2004 EA assessed air quality, water quality, wetlands, forested areas, wildlife, cultural resources, aesthetics, noise, protection of

children and coastal consistency. The assessment of these areas was reviewed and remains accurate and is not evaluated again. Brief synopses of the 2004 assessment of these areas are provided.

4.1.10.2 Air Quality. Aerial treatment at Fort Eustis typically would involve one rotor-wing aircraft. The actual aircraft model may vary but could involve a Bell OH-58 helicopter (or equivalent). The helicopter would operate for a maximum of 20 hours. Additionally, ground treatment techniques would involve one 5-ton equivalent pesticide mixing truck that will operate a maximum of 20 hours to perform ground treatments. Emissions from this equipment have been calculated and a Record of Non-Applicability (RONA) has been prepared documenting compliance with the General Conformity Rule. There will be minimal environmental impact to air quality from this action. An evaluation under the General Conformity Rule of the Clean Air Act was conducted. A Record of Non-Applicability (RONA) was prepared and is attached. The requirements of this rule are not applicable to this project because the total direct and indirect emissions from this project are below the conformity threshold value established at 40 CFR 93.153 (b) of 100 tons VOCs and 100 tons NOx for a facility in an OZONE Maintenance Area.

(1) Proposed Alternative. General Conformity under the Section 176 of the Clean Air Act was evaluated for this project. NOx and VOC emissions from operation of the aircraft needed to complete the project were calculated. This results in an estimated 0.37 tons of NOx emissions and 0.71 tons of VOC emissions per year. Such emissions are well below the 100 ton threshold and thus not applicable to the General Conformity Rule. Additionally, impacts to air quality from herbicide release were also considered. Aerial spraying will be performed in accordance with the product labeling and aircraft safety regulations. Normally, this will involve spraying at a height of no more than 10 feet above the tallest target plants (unless safety measures dictate otherwise). Herbicide droplets will fall to the ground and not remain airborne for any appreciable amount of time. Furthermore, the herbicide used is not volatile. Subsequently, no significant impacts to air quality will exist. See Appendix A for a Record of Non-applicability. When feasible, prescription fires may be used to augment aerial and ground herbicide treatments. However, the acreage where prescription fires would be used is very small because many of the areas affected by common reed are not easily accessible in order to control prescription fires.

(2) No Action Alternative. No air emissions would result from this alternative since no treatment of common reed would occur.

4.1.10.3 Water Quality- Drinking Water and Groundwater Withdrawal Wells. This section evaluates potential impacts to drinking water and groundwater withdrawal wells. The Newport News Water Works supplies drinking water to Fort Eustis. Water supplies for Fort Eustis and other local municipal customers originate in the Harwood Mills Reservoir and the Lee Hall Reservoir. No drinking water intake systems exist at Fort Eustis. Several groundwater withdrawal wells exist within Mulberry Island. These wells contain non-potable water used for various purposes.

(1) Proposed Action. Both reservoirs utilized by the Newport News Water Works are located outside of the Fort Eustis boundary where no spraying will occur. As with the 2004 EA, no spraying occurs near the groundwater well locations at Fort Eustis. All installation activities will be notified as to when aerial spraying will take place. .

(2) No Action Alternative. No impact to drinking water sources would result from this alternative since no aerial spray would occur.

4.1.10.4 Water Quality- Surface Water. Several surface water sources (along with associated tributaries) exist adjacent to targeted spray sites. These sources include Skiffes Creek, Eustis Lake, and the Warwick River. Eustis Lake is a 45-acre man-made recreational lake used for catch-and-release sport fishing and boating. It is also an Installation Restoration Program (IRP) site. The site is currently under remediation for PCB contamination in sediment and fish tissue. The site is addressed in accordance with the regulations promulgated under Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Common reed still has not encroached into the lake's shoreline. Discussion on the VPDES General Permit has been addressed in 4.1.2.

(1) Proposed Alternative. The intent of the project is to spray directly onto stands of common reed that exist along the shorelines of the surface waters discussed above. Drift of herbicide directly into surface waters will be greatly minimized by following the procedures articulated in respective labels. Based on the small quantities dispersed during spraying (along with using the appropriate precautions to prevent drift) only very limited quantities are expected to enter surface waters. Subsequently, impacts to surface waters are not expected.

(2) No Action Alternative. No impact to surface waters would occur since this alternative would not involve spraying of the herbicide.

4.1.10.5 Wetlands. An estimated 3,000 acres of tidal and non-tidal wetlands exist at Fort Eustis. Most of the common reed stands are associated with tidal wetlands and the Fort Eustis Dredged Material Management Area (FEDMMA). In most cases, the common reed stands are monoculture stands. In these cases, native wetland vegetation is non-existent. Treatment of the monoculture stands is not therefore expected to impact native vegetation. Adjacent areas may contain other vegetation; however, drift will be minimized by applying in accordance with the label as well as using ground treatment where aerial spray is not feasible or could drift. Several new stormwater retention ponds have been constructed since 2004. One pond contains new common reed growth that has not yet taken over the site. In this case ground treatment techniques with backpack sprayers or ground vehicles will be used instead of aerial treatments. Artificial tidal wetlands containing *Spartina spp.* were constructed along Harrison Road on the James River to prevent erosion of the road. Some common reed has encroached here and treatment will be vial ground treatment means. An estimated 80 acres of vernal pools also exist at Fort Eustis primarily on Mulberry Island. Common reed has had little impact on these pools at this point.

(1) Proposed Alternative. The intent of spraying herbicide is to eliminate an invasive plant species that degrades the value, biodiversity and productivity of wetlands. This project will reduce the impacts of common reed in several wetlands and reduce its expansion into more wetlands areas over time.

(2) No Action Alternative. By taking no action, common reed will continue to expand and degrade more wetlands. This could include the planned *Spartina* marsh being created to stabilize Harrison Road.

4.1.10.6 Forested land and trees. Mulberry Island comprises an estimated 2,700 acres of upland forested land. These areas are comprised of approximately two-thirds coniferous species (with loblolly pine as the dominant species). The remaining hardwoods include oak (red, white and black oak), yellow popular, sweet gum, red maple and American beech. Understory vegetation includes sassafras, aralia, honeysuckle, greenbrier, wax myrtle and red bay.

(1) Proposed Alternative. Most of the aerial spraying will avoid forested areas. Appropriate procedures will be implemented to reduce the risk of drift. Some trees may be associated with wetlands areas and may be adjacent to the targeted areas. However, few trees are expected to be exposed to the herbicide. Additionally, trees will be at a lower risk due to the lateness in the year (October) and will be entering dormancy.

(2) No Action Alternative. Damage to trees from herbicide exposure is not associated with this alternative.

4.1.10.7 Wildlife. Wildlife found on Fort Eustis include 31 species of mammals, 191 species of birds, 18 species of amphibians and 15 species of reptiles. Some of these species are found in wetland areas but few utilize wetlands containing large stands of common reed. Several wading birds and raptors occur at Fort Eustis that may be associated with wetlands or areas adjacent to common reed stands. These include great blue herons, great egrets, yellow-crowned night herons and ospreys. These bird species are not expected to occur in common reed stand nor would there be a need to spray herbicide directly on such areas. The application time frame (between August and October) is outside the normal breeding season for these species. Furthermore, roosting areas, rookeries and individual osprey nests are documented and monitored by installation natural resource staff. The information pertaining to these species and other wildlife articulated in the 2004 EA remains accurate. Few if any herpetofauna occur in large stands of common reed because the thick growth precludes breeding by amphibians. Occasionally deer enter common reed stands. Some passerine birds such as red-wing blackbirds may occur in common reed. Nesting of any bird species is typically outside the proposed treatment timeframes between August and October.

Proposed action: Since common reed stands are large monocultures that lack resources for most native wildlife, few native species are expected to occur in any frequency within such

habitats. Consequently, exposure to wildlife is limited. Furthermore, the objective of this project to reduce the impacts of this plant on the local ecosystem and eventually rehabilitate such areas back to natural conditions.

No action alternative: The difference between wildlife exposures in either alternative is very similar since most native wildlife do not use common reed stands. However, under this alternative, expansion of common reed will occur that reduces availability of resources to native wildlife.

4.1.10.8 Cultural resources. Cultural resources include archeological sites, structures, historic districts and artifacts. An extensive archaeological survey was completed at Fort Eustis in 1989 (MAAR Associates, Inc). That survey indentified two hundred and sixteen archeological sites additional archaeological survey has lead to the identification of fourteen additional sites. Currently 230 archaeological sites have been identified on Fort Eustis. Three sites are listed on the National Register of Historic Places (NRHP) and another fourteen have been determined eligible for listing on the NRHP. The listed properties are the Matthew Jones House, Fort Crafford and the Davis-Kimpton Brickyard.

(1) Proposed Alternative. No specific excavation of areas containing common reed is specifically planned at the time of this SEA. As discussed previously, excavation is not expected to be a major tool in common reed management and its use in general is expected to be limited. Any opportunities arising where this technique can be utilized will require archaeological surveys with follow-on consultation with the State Historic Preservation Officer. Subsequently, significant impact to cultural resources is not expected.

(2) No Action Alternative. No impacts are associated from this alternative since this alternative does not involve application of herbicide.

4.1.10.9 Aesthetics. Aesthetics represent the image of the installation's scenery and landscape. Aesthetics apply to non-developed areas as well as development within the cantonment area. Common reed represents visual anomalies by blocking out other native vegetation and wildlife associated with native ecosystems. Areas along Harrison Road (that parallels the James River) offer scenic areas for the installation community and visitors to enjoy. Bird watching, other wildlife watching, picnicking and sport fishing opportunities exist in this area.

(1) Proposed Alternative. Expansion of common reed mars the aesthetics especially if it expands along the James River and the wetlands that exist on the opposite side of Harrison Road. Elimination of common reed and prevention of its expansion into this area would enhance the aesthetics.

(2) No Action Alternative. This alternative precludes controlling of common reed expansion. Subsequently, aesthetics will be impacted by this alternative.

4.1.10.10 Noise. Noise sources included aircraft noise from aircraft (primarily rotor-wing aircraft) at Felker Army Airfield, railroad noise from rail operations training and small arms range firing. The aircraft and ground vehicles do not generate noise levels above the existing conditions and are of short duration.

(1) Proposed Alternative. This project involves the use of one rotor-wing aircraft that will operate for approximately 20 hours per year. This aircraft is considerably smaller and generates less noise than the military aircraft that routinely operate at Fort Eustis. Operation time will be during normal daytime duty hours. Subsequently, no noise issues are expected from this project.

(2) No Action Alternative. No noise issues would occur from this alternative since no aircraft would be operated.

4.1.10.11 Protection of Children from Environmental Health and Safety Risks. Executive Order 13045 requires that projects be evaluated to determine if such projects pose hazards to the health and safety of children. Fort Eustis functions in a manner similar to any given municipality. Military dependents reside on the installation. Additionally, an elementary school and child development center exist at Fort Eustis.

(1) Proposed Alternative. This project will occur primarily in the Mulberry Island area of Fort Eustis with the exception of the area west of Eustis Lake. The areas containing common reed do not represent locations were children would have activities, and targeted areas for treatment are not adjacent to schools, day care centers, playgrounds or housing units. Subsequently, the health and safety of children will not be affected by this project.

(2) No Action Alternative. No hazards to children would be present from this alternative since no actual spraying would occur.

4.1.10.12 Environmental Justice. Executive Order 12898 requires that projects be evaluated to determine if such projects posed hazards to low-income or minority communities. This project is restricted to the Fort Eustis military reservation.

(1) Proposed Alternative. No aircraft flights or spraying is associated with communities outside the installation boundary. This project takes primarily in more remote areas of the Fort Eustis military reservation. No visual or auditory impairments or chemical contamination will occur to affect local communities. Subsequently, this project does not pose disproportionately high adverse human health and environmental effects on minority or low-income populations residing in the surrounding communities.

(2) No Action Alternative. No hazards or impacts on low-income or minority communities would occur from this alternative since no actual spraying would occur.

4.1.11.13 Coastal Zone Management. A Coastal Zone Consistency Determination was prepared in the 2004 EA. The proposed action remains similar to that of the 2004 EA. The Proposed Action for this SEA is considered consistent with Virginia's Coastal Resources Management Program.

5.0 Cumulative Impacts. This project is specifically intended to improve the natural environment by controlling common reed. There are no future projects specifically intended to eliminate or encroach upon tidal or non-tidal wetlands at this time. No construction would occur in wetlands as a result of this project. No other large scale spraying of herbicide is planned in the near term. Pesticides (including herbicides) are applied based on integrated pest management principles on an as-needed basis following surveys for arthropod vectors of diseases (such as for ixodid ticks that carry Lyme disease and mosquitoes that carry West Nile Virus). This occurs in the cantonment area and to some extent in training areas on Mulberry Island. However, such pesticide use must be accomplished in accordance with the Fort Eustis Integrated Pest Management Plan. As discussed previously, treatment of wetlands containing stands of common reed will occur once per year with a decreasing need based on monitoring for efficacy. No cumulative environmental impacts are anticipated.

6.0. Conclusions. The proposed action of controlling common reed with herbicides primarily via aerial application (with supporting ground applications) as the primary means was analyzed by considering potential impacts to Atlantic sturgeon, bald eagles and water quality in terms of the new General Permit VAG87. A review of other environmental resource areas discussed in the 2004 determined that the assessment of those areas remains accurate and consistent between two documents. Subsequently, a Finding of No Significant Impact (FONSI) has been prepared. This precludes the need for an Environmental Impact Statement. Implementation of mitigation measures noted below is recommended.

7.0 Mitigation Measures. Mitigation measures will include the following:

(1) The installation natural resources managers will meet with a designated contractor in advance to plan the aerial spray. This SEA and the 2004 EA will be reviewed and key locations such as the bald eagle nest sites, great egret roost sites, osprey nests and other issues will be mapped and avoided.

(2) The flight plan will be reviewed and pre-spray flights will be conducted.

(3) Aerial spray will be conducted such that drift will be minimal. This will occur in accordance with the manufacturer's recommendations.

(4) Coordination with Range Operations, Force Support Division/Morale, Welfare & Recreation staff, military police and the Office of Public Affairs will ensure appropriate notifications so preclude access to areas being sprayed.

Appendix A

Regulatory Consultation Letters

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, 733D MISSION SUPPORT GROUP
JOINT BASE LANGLEY-EUSTIS
Civil Engineer Division
1407 Washington Blvd
FORT EUSTIS, VIRGINIA

Environmental Element

JUL 18 2012

Cindy Schulz
US Fish and Wildlife Service
VA Field Office
Division of Ecological Services
6669 Short Lane
Gloucester, VA 23601

Dear Ms. Schulz:

Joint Base Langley-Eustis, Fort Eustis intends to continue management of the invasive grass common reed (*Phragmites australis*) through implementation of control techniques. These techniques focus primarily on aerial spray of herbicides augmented with herbicide application via ground techniques and physical control methods as appropriate/feasible. An Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) were completed in 2004. However, several changes in federal regulations as well as biological resources have occurred since 2004 that require additional environmental impact analysis. In accordance with Title 32 of the Code of Federal Regulations Part 989 a draft Supplemental Environmental Assessment (SEA) has been prepared. As a result of this additional analysis, the U.S. Air Force determined that no significant impact on respective resources will occur and a draft FONSI has been prepared.

Please find the draft SEA and respective draft FONSI within the enclosed compact disk. Request your agency review this assessment and submit within 30 days of receipt of this letter. Comments can be sent electronically or by regular mail to:

Timothy P. Christensen
733 Mission Support Group
Civil Engineer Division
1407 Washington Blvd
Fort Eustis, VA 23604
Timothy.p.christensen.civ@mail.mil

Please contact Mr. Tim Christensen via email or phone if you have questions or require assistance. He can be reached at 757-878-4231.

Sincerely,

Susan P. Miller
Chief, Environmental Element

mailed 20 July 2012

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, 733D MISSION SUPPORT GROUP
JOINT BASE LANGLEY-EUSTIS
Civil Engineer Division
1407 Washington Blvd
FORT EUSTIS, VIRGINIA

Environmental Element

JUL 18 2012

Mark Murray-Brown
NOAA Fisheries Northeast Region
Protected Resources Division
Section 7/Sea Turtle Coordinator
55 Great Republic Drive
Gloucester MA 01930

Dear Mr. Murray-Brown:

Joint Base Langley-Eustis, Fort Eustis intends to continue management of the invasive grass common reed (*Phragmites australis*) through implementation of control techniques. These techniques focus primarily on aerial spray of herbicides augmented with herbicide via ground techniques and physical control methods as appropriate/feasible. An Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) were completed in 2004. However, several changes in federal regulations as well as biological resources have occurred since 2004 that require additional environmental impact analysis. In accordance with Title 32 of the Code of Federal Regulations Part 989 a draft Supplemental Environmental Assessment (SEA) has been prepared. As a result of this additional analysis, the U.S. Air Force has initially determined that no significant impact on respective resources will occur and a draft FONSI has been prepared.

Please find the draft SEA and respective draft FONSI within the enclosed compact disk. Request your review of this assessment and provide comments within 30 days of receipt of this letter. Comments can be sent electronically or by regular mail to:

Timothy P. Christensen
733 Mission Support Group
Civil Engineer Division
1407 Washington Blvd
Fort Eustis, VA 23604
Timothy.p.christensen.civ@mail.mil

Please contact Mr. Tim Christensen via email or phone if you have questions or require assistance. He can be reached at 757-878-4231.

Sincerely,

Susan P. Miller
Chief, Environmental Element

mailed 20 July 2012

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, 733D MISSION SUPPORT GROUP
JOINT BASE LANGLEY-EUSTIS
Civil Engineer Division
1407 Washington Blvd
FORT EUSTIS, VIRGINIA

Environmental Element

JUL 19 2012

USEPA Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Sir/Madam:

Joint Base Langley-Eustis, Fort Eustis intends to continue management of the invasive grass common reed (*Phragmites australis*) through implementation of control techniques. These techniques focus primarily on aerial spray of herbicides augmented with herbicide application via ground techniques and physical control methods as appropriate/feasible. An Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) were completed in 2004. However, several changes in federal regulations as well as biological resources have occurred since 2004 that require additional environmental impact analysis. In accordance with Title 32 of the Code of Federal Regulations Part 989 a draft Supplemental Environmental Assessment (SEA) has been prepared. As a result of this additional analysis, it is determined that no significant impact on respective resources will occur and a draft FONSI has been prepared.

Please find the draft SEA and respective draft FONSI within the enclosed compact disk. Request your agency review this assessment and provide within 30 days of receipt of this letter. Comments can be sent electronically or by regular mail to:

Timothy P. Christensen
733 Mission Support Group
Civil Engineer Division
1407 Washington Blvd
Fort Eustis, VA 23604
Timothy.p.christensen.civ@mail.mil

Please contact Mr. Tim Christensen via email or phone if you have questions or require assistance. He can be reached at 757-878-4231.

Sincerely,

Susan P. Miller
Chief, Environmental Element

mailed 20 July 2012

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, 733D MISSION SUPPORT GROUP
JOINT BASE LANGLEY-EUSTIS
Civil Engineer Division
1407 Washington Blvd
FORT EUSTIS, VIRGINIA

Environmental Element

JUL 1 8 2012

Ms. Ellie L. Irons
Virginia Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street
Richmond, VA 23619

Dear Ms. Irons:

Joint Base Langley-Eustis, Fort Eustis intends to continue management of the invasive grass common reed (*Phragmites australis*) through implementation of control techniques. These techniques focus primarily on aerial spray of herbicides augmented with herbicide application via ground techniques and physical control methods as appropriate/feasible. An Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) were completed in 2004. However, several changes in federal regulations as well as biological resources have occurred since 2004 that require additional environmental impact analysis. In accordance with Title 32 of the Code of Federal Regulations Part 989 a draft Supplemental Environmental Assessment (SEA) has been prepared. As a result of this additional analysis, the U.S. Air Force determined that no significant impact on respective resources will occur and a draft FONSI has been prepared. However, this assessment is forwarded to Commonwealth agencies for consideration

Please find four (4) hardcopies of draft SEA and FONSI as well as fourteen (14) compact disks containing these documents included with this letter.

Request Commonwealth agencies review this assessment and provide comments within 30 days of receipt of this letter. Comments can be sent electronically or by regular mail to:

Timothy P. Christensen
733 Mission Support Group
Civil Engineer Division
1407 Washington Blvd
Fort Eustis, VA 23604
Timothy.p.christensen.civ@mail.mil

Please contact Mr. Tim Christensen via email or phone if you have questions or require assistance. He can be reached at 757-878-4231.

Sincerely,

Susan P. Miller

Susan P. Miller
Chief, Environmental Element

4 hardcopies
14 CDs

mailed 20 July 2012

Appendix B

Regulatory Agency Responses

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

August 15, 2012

Mr. Timothy P. Christensen
733 Mission Support Group
Civil Engineer Division
1407 Washington Boulevard
Fort Eustis, VA 23604

Re: Supplemental Environmental Assessment for Control of Common Reed (*Phragmites australis*) at Joint Base Langley-Eustis, Fort Eustis, Virginia

Dear Mr. Christensen:

In accordance with the National Environmental Policy Act (NEPA) of 1969, Section 309 of the Clean Air Act and the Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508), the U.S. Environmental Protection Agency (EPA) has reviewed the Supplemental Environmental Assessment (EA) for the Control of Common Reed (*Phragmites australis*) at Joint Base Langley-Eustis, Fort Eustis, Virginia.

Control of common reed on Fort Eustis was initiated in 2004 following completion of an EA and approval of a FONSI. The purpose of the Supplemental EA is to assess the effects of common reed control techniques in relation to regulatory and biological resources changes that have occurred since 2004. These changes are: 1) Fort Eustis and Langley Air Force Base (LAFB) are now a joint base, Joint Base Langley-Eustis, with the Air Force assuming responsibility for environmental matters on the installation; 2) the Atlantic sturgeon was recently listed as a federally endangered species under the Endangered Species Act; 3) bald eagles have been delisted since 2007, however, they are afforded special protection under the Bald and Golden Protection Act and promulgated federal regulations; 4) as of October 31, 2011, applications of pesticide that enter or could enter surface waters must be accomplished in accordance with the Commonwealth of Virginia Pollutant Discharge Elimination System (VPDES) General Permit (VAG87).

The focus of the SEA is based on the above factors. The SEA states that other environmental issues evaluated in the 2004 EA remain valid because the control methods used in 2004 and in the future remain consistent. The only major difference concerns the pesticides used. Glysophate was used in 2004; however imazypyr-based pesticides are available.

EPA understands the purpose and need for the SEA. However, as a result of our review of the SEA, EPA has provided questions and suggestions in the Technical Comments document (enclosed) for your review and consideration

Thank you for providing EPA with the opportunity to review this project. If you have questions regarding these comments, the staff contact for this project is Karen DelGrosso; she can be reached at 215-814-2765.

Sincerely,

Barbara Rudnick
NEPA Team Leader
Office of Environmental Programs

Enclosure (1)

Technical Comments

Effectiveness of Control Methods

In the 2004 EA, roughly 500 acres of *Phragmites* on the Fort Eustis property were proposed for control using Rodeo, which is a glysophate-base herbicide. In the 2012 SEA, approximately 600 acres would be treated over time. EPA commented in the 2004 EA that Rodeo had been on the market for approximately 15-20 years. As a result, plants themselves build up a resistance to the agent which would then negate the effectiveness of the product. EPA had suggested that newer herbicides be investigated as they may have a more positive effect. The SEA states page ES-2, "This action could involve one of several herbicides authorized for use in aquatic systems including imazypyr and glysophate-based herbicides (and other herbicides registered by the U.S. Environmental Protection Agency for use in aquatic environments)."

EPA commented in the 2004 EA the need to perform post application monitoring to determine the level of effectiveness and success in controlling *Phragmites*. Although monitoring is proposed in the 2012 SEA, EPA questions the results of monitoring over the past 8 years. Since the existing SEA addresses the need to control 600 acres (100 acres more than that proposed in the 2004 EA) then the effectiveness of past practices should be analyzed and used in evaluating continued control methods [i.e., should glysophate-based herbicides be used or should a completely new product (that is formulated for use in aquatic systems) be pursued?].

Chesapeake Bay Executive Order

Fort Eustis is located within the Chesapeake Bay watershed in southeastern Virginia. Since the installation's shoreline borders the James River on the west and the Warwick River on the East, it is important to address impacts to the Chesapeake Bay.

In May 2009, President Obama signed Executive Order (EO) 13508, which tasked a team of federal agencies to draft a way forward for protection and restoration of the Chesapeake watershed. This team, the Federal Leadership Committee (FLC) for the Chesapeake Bay, developed the *Strategy for Protecting and Restoring the Chesapeake Bay Watershed*, which was released in May 2010. That document sets out clear and aggressive goals, outcomes, and objectives to be accomplished through 2025 by the federal government, working closely with state, local, and nongovernmental partners, to protect and restore the health of the Chesapeake Bay watershed.

One specific effort of the Chesapeake Bay Strategy includes preparing a report on toxic contaminants in the Bay and watershed that will help guide new reduction goals for toxic contaminants in 2013. The SEA should provide a discussion of possible contaminants that may result from the Proposed Action and the potential impacts to the Chesapeake Bay as it relates to the efforts developed in the Strategy for Protecting and Restoring the Chesapeake Bay Watershed (efforts include: restoring water quality, recovering habitat, sustaining fish and wildlife and conserving land and increasing public access).

Please keep in mind any pesticides used in an around the Chesapeake Bay must be labeled for aquatic use, mixed loaded and applied according to the label and applied by or under the direct supervision of a certified applicator. To reduce the risk of contamination you may want to consider utilizing an Integrated Pest Management (IMP) approach to your control strategy which integrates such practices as mechanical removal, slash and burn, hand application while plants are young, etc.

Cultural Resources

Page 18 states, "As discussed previously, excavation is not expected to be a major tool in common reed management and its use in general is expected to be limited. Any opportunities arising where this technique can be utilized will require archaeological surveys with follow-on consultation with the State Historic Preservation Officer." The involvement of the State Historic Preservation Officer (SHPO), if needed, is appreciated. However, consultation with the SHPO throughout the planning process is recommended. At a minimum, distributing the SEA to the SHPO would keep them abreast of the potential impact and afford them the opportunity to comment on the Proposed Action.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

AUG 21 2012

Timothy P. Christensen
733 Mission Support Group
Civil Engineer Division
1407 Washington Blvd
Fort Eustis, VA 23604

Re: Technical assistance on the usage of herbicides at Fort Eustis tidal and non-tidal wetlands

Dear Mr. Christensen,

Your letter, dated July 18, 2012, requested our review of your supplemental environmental assessment for the usage of herbicides for *Phragmites* control at Joint Base Langley-Eustis, Fort Eustis, VA, along the James River. You propose to control *Phragmites* growth with aerial pesticide spraying and ground treatments, where aerial applications are not feasible. The action involves the use of herbicides designed for aquatic environments, such as imazypyr and glyphosate-based herbicides (and possibly other herbicides registered by the U.S. Environmental Protection Agency (EPA)). We offer the following comments on the presence of listed species in your area of interest.

Listed Species in the James River

On February 6, 2012, we published two final rules listing five DPSs of Atlantic sturgeon. Atlantic sturgeon originating from the New York Bight, Chesapeake Bay, South Atlantic and Carolina DPSs were listed as endangered, while the Gulf of Maine DPS was listed as threatened (77 FR 5880; 77 FR 5914). The marine range of all five DPSs extends along the Atlantic coast from Canada to Cape Canaveral, Florida.

Atlantic sturgeon spawn in their natal river[1], with spawning migrations generally occuring during February-March in southern systems, April-May in Mid-Atlantic systems, and May-July in Canadian systems (Murawski and Pacheco, 1977; Smith, 1985; Bain, 1997; Smith and Clugston, 1997; Caron *et al.*, 2002). Young remain in the river/estuary until approximately age 2 and at lengths of 30-36 inches before emigrating to open ocean as subadults (Holland and Yelverton, 1973; Dovel and Berggen, 1983; Dadswell, 2006; ASSRT, 2007). After emigration from the natal river/estuary, subadults and adult Atlantic sturgeon travel within the marine environment,

1 Known spawning (natal) rivers: Gulf of Maine DPS: Kennebec River; New York Bight DPS: Hudson and Delaware Rivers; Chesapeake Bay DPS: James River; and Carolina DPS: Roanoke, Tar-Pamlico, Cape Fear, Waccamaw, Great Pee Dee, and Santee-Cooper Rivers. Additional spawning rivers may exist; however, at this time these locations are unknown or have not yet been confirmed.

typically in waters between 16 to 164 feet in depth, using coastal bays, sounds, and marine waters (Vladykov and Greeley, 1963; Murawski and Pacheco, 1977; Dovel and Berggren, 1983; Smith, 1985; Collins and Smith, 1997; Welsh *et al.*, 2002; Savoy and Pacileo, 2003; Stein *et al.*, 2004; Laney *et al.*, 2007; Dunton *et al.*, 2010; Erickson *et al.*, 2011). However, the distribution of Atlantic sturgeon is strongly associated with prey availability, and as a result, Atlantic sturgeon may occur in small tributaries of larger rivers if suitable forage (e.g., benthic invertebrates such as mollusks and crustaceans) and appropriate habitat conditions are present.

Based on the best available information, Atlantic sturgeon originating from any of five DPSs could occur in the James River near Fort Eustis; however, the Chesapeake Bay DPS spawns in upstream reaches of the James, whereas the other DPSs do not. The 340 mile long James River is Virginia's largest river and the largest tributary to the Chesapeake Bay (Bushnoe *et al.*, 2005). Tidal waters extend from the mouth, west to Richmond, VA, at the river's fall line (Bushnoe *et al.*, 2005). Based on modeling work using features associated with spawning habitat (e.g., suitable substrate), Bushnoe *et al.* (2005) concluded that the Turkey Island oxbow and the James Neck oxbow were potential spawning sites for Atlantic sturgeon in the James River.

Environmental cues appear to play a strong role in use of the James River by adult, presumably Chesapeake Bay DPS, Atlantic sturgeon (Hager *et al.*, 2011). Adult sturgeon enter the river in spring when water temperatures are around 17° C, and occur from river mile 18 to river mile 67 before departing from the river in June when water temperatures are around 24° C (Hager *et al.*, 2011). Tracking data for 2010 demonstrated a congregation of sturgeon in freshwater areas at river mile 48, suggesting the possibility of suitable spawning habitat in this area (Hager *et al.*, 2011).

Adult sturgeon appear to be absent from the James River for most of the summer until late August when tagged fish are once again detected in the river (Hager *et al.*, 2011). During the late summer-early fall residency (August-October), fish ascend the river rapidly and aggregate in upriver sites between rkm 48 and the fall line near Richmond, VA; possibly in response to physiologically stressful conditions (e.g., low dissolved oxygen and elevated water temperature) in the lower James River and Chesapeake Bay (Hager *et al.*, 2011). As temperature declines in late September or early October, adults disperse through downriver sites and begin to move out of the river (Hager *et al.*, 2011). By November, adults occupy only lower river sites (Hager *et al.*, 2011). By December, adults are undetected on the tracking array and, thus, are presumed to be out of the river (Hager *et al.*, 2011).

The spawning season for Chesapeake Bay DPS Atlantic sturgeon is April - May based on historical and current evidence that includes: (1) records of large harvests near the mouth of the Chesapeake Bay and in the lower James River in April; (2) incidental observations of adult-sized carcasses and incidental capture of adult-sized live fish in April; (3) detection of sonically tagged sturgeon in current scientific studies; and, (4) capture of a large female sturgeon in spawning condition within the James River in April 2011 (Hildebrand and Schroeder, 1928; Vladykov and Greeley, 1963; Bushnoe *et al.*, 2005; ASSRT; 2007; Blakenship, 2011). Capture of another large female in post-spawning condition within the James River in September 2011 suggests the possibility of a second late-summer spawning run (Balazik, unpublished data). However, further analyses are needed to confirm whether fall spawning is occurring in the James River.

Technical Assistance

The EPA has determined that a number of herbicides are harmless to aquatic life, including listed species such as Atlantic sturgeon, if used at the manufacturer's rate of application. A Biological Opinion on the usage of pesticides and the effects to listed species was completed in 2012. Glyphosate and imazypyr have both been approved for aquatic weed control and are not known to create adverse conditions for listed species. When used at the manufacturer's rate of application, both herbicides were determined as "not likely to adversely affect" listed species when formal consultation was initiated on point source discharge of pesticides into U.S. waters. It should be noted that not all EPA registered pesticides are harmless to listed species. If you choose to use different pesticides than those listed in your letter to us from July 18, 2012, we recommend you check with EPA on the appropriateness of the herbicide, to ensure that you would not be creating adverse conditions for any listed species, including Atlantic sturgeon.

Conclusions

As you may know, any discretionary federal action, such as the approval or funding of a project by a Federal agency, that may affect a listed species must undergo consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended. If the proposed project has the potential to affect listed species and it is being approved, permitted or funded by a Federal agency, the lead Federal agency, or their designated non-Federal representative, is responsible for determining whether the proposed action is likely to affect this species. The Federal agency would submit their determination along with justification for their determination and a request for concurrence, to the attention of the Section 7 Coordinator, NMFS Northeast Regional Office, Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930. After reviewing this information, NMFS would then be able to conduct a consultation under section 7 of the ESA.

Should you have any questions regarding these comments, please contact Chris Vaccaro at 978-281-9167 or by email at Christine.Vaccaro@noaa.gov.

Sincerely,

Kimberly Damon-Randall
Acting Assistant Regional Administrator
for Protected Resources

File Code: Tech Assistance
PCTS: TNER/2012/03382

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

August 30, 2012

Mr. Timothy P. Christensen
733 Mission Support Group
Civil Engineer Division, U.S. Air Force
Joint Base Langley-Eustis
1407 Washington Boulevard
Fort Eustis, Virginia 23604

RE: Draft Supplemental Environmental Assessment for the Control of the Common Reed (*Phragmites australis*) at Joint Base Langley-Eustis, DEQ-12-140F

Dear Mr. Christensen:

The Commonwealth of Virginia has completed its review of the above-referenced document. The Department of Environmental Quality is responsible for coordinating Virginia's review of federal environmental documents and responding to appropriate federal officials on behalf of the Commonwealth. The following agencies, regional planning district commission, and locality joined in this review:

Department of Environmental Quality
Department of Game and Inland Fisheries
Department of Agriculture and Consumer Services
Department of Conservation and Recreation
Department of Health
Virginia Marine Resources Commission
Department of Forestry
Department of Historic Resources
Hampton Roads Planning District Commission
City of Newport News

PROJECT DESCRIPTION

The Department of the Air Force (Air Force) at Joint Base Langley-Eustis in the City of Newport News has submitted a Supplemental Environmental Assessment (SEA) for the control of the common reed (*Phragmites australis*). Control of the common reed was

initiated in 2004 following completion of an Environmental Assessment (EA) (the Commonwealth reviewed and responded to the EA in 2004 (DEQ 04-121F)). Since then, several regulatory and biological resource changes have occurred including:

- listing the Atlantic sturgeon as a federal endangered species;
- delisting of the bald eagle as an endangered species (now afforded special protection under the Bald and Golden Eagle Protection Act);
- changes to the Virginia Pollutant Discharge Elimination System (VPDES) General Permit (VAG87) affecting the application of herbicides; and
- availability of imazapyr-based herbicides.

The purpose of the SEA is to assess the effects of common reed control techniques in relation to these changes. The proposed action will continue the existing approach to controlling the common reed with aerial spraying of herbicides as the primary method with follow-up treatment using herbicides via ground techniques where aerial spray is infeasible. This action could involve one of several herbicides authorized for use in aquatic environment including imazapyr- and glysophate-based herbicides (and possibly other herbicides registered by the U.S. Environmental Protection Agency for use in aquatic environments). Furthermore, this action could include augmentation with physical control methods such as prescription fires, excavation, retention of high water levels and re-planting with native vegetation when feasible/practical. However, under this action these non-chemical methods are not likely to be used alone, and the frequency would be limited based on unique installation conditions.

ENVIRONMENTAL IMPACTS AND MITIGATION

1. Wildlife Resources and Protected Species. According to the SEA (page 9) on April 6, 2012 all U.S. populations of Atlantic sturgeon became subject to the Endangered Species Act. The Atlantic sturgeon occurs in the James River which borders Fort Eustis. Herbicide treatment techniques to control common reed generally occur between August and October, outside of the Atlantic sturgeon spawning period. The planning and execution of treatments will be performed in accordance with the herbicide label as required by law and in accordance with the installation's Pesticide Discharge Management Plan (which is required to meet compliance with the Virginia Pesticide General Permit VAG87). Direct spraying of open water would be avoided and drift minimized to avoid discharges to the water column. The SEA notes that both imazapyr and glysophate have low toxicities to fish (Extension Toxicology Network, 1994).

The SEA (page 11) notes that the bald eagle was removed from the Federal Endangered Species Act (ESA) on August 8, 2007. However, it remains protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA), as well as Commonwealth of Virginia laws and regulations. Bald eagles are not expected to occur in areas proposed for herbicide treatment. Aerial spraying would be postponed if eagles were observed flying in the immediate areas slated for

treatment because this would pose as a potential Bird Air Strike Hazard (BASH) for the pilot. The locations of nest sites are included in the herbicide application planning.

1(a) Agency Jurisdiction. The Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species, but excluding listed insects (Virginia Code Title 29.1). The DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 *et seq.*), and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts.

1(b) Agency Findings.

(i) Atlantic Sturgeon

According to DGIF records, the federal-listed endangered Atlantic sturgeon has been documented from the project area. DGIF notes that it appears the Air Force has coordinated this activity with respect to the Atlantic sturgeon with the National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries).

(ii) Bald Eagle

According to DGIF records, the state-listed threatened bald eagle has been documented from the project area. Assuming adherence to the protective measures included in the SEA, including no aerial spraying during the bald eagle nesting season, DGIF does not anticipate the proposed work to result in adverse impacts upon the bald eagles using the nests on site.

In addition, the project area falls within the James River Bald Eagle Concentration Zone. However, based on the scope and location of the proposed work, DGIF does not anticipate it to result in adverse impacts upon bald eagles roosting and foraging in the area.

(iii) James River and Skiffes Creek Anadromous Fish Use Areas

The James River and Skiffes Creek have been designated Anadromous Fish Use Areas. Based on the scope and location of the proposed work, DGIF does not anticipate it to result in adverse impacts upon these resources.

1(c) Recommendations. DGIF recommends that this activity adhere to the currently approved Integrated Natural Resources Management Plan (INRMP) for the installation, including adherence to the bald eagle protection requirements laid out in the Bald Eagle Management Plan that was developed with the U.S. Fish and Wildlife Service

(USFWS). In addition, the Air Force should coordinate this activity with the USFWS to ensure that an eagle take permit is not necessary for possible impacts within the concentration zone.

2. Natural Heritage Resources. The SEA does not specifically discuss potential project impacts to natural heritage resources.

2(a) Agency Jurisdiction.

(i) Department of Conservation and Recreation

The mission of the Virginia Department of Conservation and Recreation (DCR) is to conserve Virginia's natural and recreational resources. The DCR-Natural Heritage Program's (DCR-DNH) mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. The Virginia Natural Area Preserves Act, 10.1-209 through 217 of the Code of Virginia, was passed in 1989 and codified DCR's powers and duties related to statewide biological inventory: maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources (the habitats of rare, threatened, and endangered species, significant natural communities, geologic sites, and other natural features).

(ii) Department of Agriculture and Consumer Services

The Endangered Plant and Insect Species Act of 1979, Chapter 39, §3.1-102- through 1030 of the *Code of Virginia*, as amended, authorizes the Virginia Department of Agriculture and Consumer Services (VDACS) to conserve, protect and manage endangered species of plants and insects. The VDACS Virginia Endangered Plant and Insect Species Program personnel cooperates with the U.S. Fish and Wildlife Service, DCR-DNH and other agencies and organizations on the recovery, protection or conservation of listed threatened or endangered species and designated plant and insect species that are rare throughout their worldwide ranges. In those instances where recovery plans, developed by the U.S. Fish and Wildlife Service, are available, adherence to the order and tasks outlines in the plans are followed to the extent possible.

2(b) Agency Findings. DCR-DNH searched its Biotics Data System for occurrences of natural heritage resources from the project area.

(i) Marshy Point Conservation Site

According to the information currently in DCR-DNH files, the Marshy Point Conservation Site is within the project area. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to

include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain, on a scale of 1-5, 1 being most significant. Marshy Point Conservation Site has been given a biodiversity significance ranking of B5, which represents a site of very high significance. The natural heritage resource of concern at this site is:

Haliaeetus leucocephalus	Bald eagle	G5/S2S3B,S3N/NL/LT

The bald eagle breeds from Alaska eastward through Canada and the Great Lakes region, along coastal areas off the Pacific and Atlantic Oceans, and the Gulf of Mexico, and in pockets throughout the western United States (NatureServe, 2009). In Virginia, it primarily breeds along the large Atlantic slope rivers (James, Rappahannock, Potomac, etc) with a few records at inland sites near large reservoirs (Byrd, 1991). Bald eagle nest sites are often found in the midst of large wooded areas near marshes or other bodies of water (Byrd, 1991). Bald eagles feed on fish, waterfowl, seabirds (Campbell et. al., 1990), various mammals and carrion (Terres, 1980). This species is currently classified as threatened by the Virginia Department of Game and Inland Fisheries.

Threats to this species include human disturbance of nest sites (Byrd, 1991), habitat loss, biocide contamination, decreasing food supply and illegal shooting (Herkert, 1992).

(ii) Threatened and Endangered Plant and Insect Species

VDACS has regulatory authority to conserve rare and endangered plant and insect species through the Virginia Endangered Plant and Insect Species Act. Under a Memorandum of Agreement established between VDACS and DCR, DCR has the authority to report for VDACS on state-listed plant and insect species. DCR finds that the current activity will not affect any documented state-listed plants or insects. In addition, VDACS concurs that no listed threatened or endangered plant or insect species are documented to occur in the vicinity of the project area based on information in the VDACS data base. VDACS does not anticipate that the project will have significant adverse effects with respect to the agency's responsibilities for the projection of listed threatened and endangered plant and insect species.

(iii) State Natural Area Preserves

DCR files do not indicate the presence of any State Natural Area Preserves under the agency's jurisdiction in the project vicinity.

2(c) Recommendation. The Air Force should contact DCR-DNH at (804) 786-7951 to secure updated information on natural heritage resources if a significant amount of time passes before the project is implemented. New and updated information is continually added to the Biotics Data System.

2(d) Conclusion. DCR-DNH supports the control of the invasive species *Phragmites australis* by the proposed action using aerial spraying and mechanical controls as needed and the restoration of areas with *Spartina spp.* or other native vegetation.

3. Water Quality and Wetlands. According to the SEA (page 16), herbicide would be sprayed directly onto stands of common reed that exist along the shorelines of the surface waters on the base. The drift of herbicide directly into surface waters will be greatly minimized by following the procedures articulated in respective labels. Based on the small quantities dispersed during spraying (along with using the appropriate precautions to prevent drift) only very limited quantities are expected to enter surface waters. Subsequently, impacts to surface waters are not expected.

The SEA (page 16) states that an estimated 3,000 acres of tidal and non-tidal wetlands exist at Fort Eustis. Most of the common reed stands are associated with tidal wetlands and the Fort Eustis Dredged Material Management Area (FEDMMA). In most cases, the common reed stands are monoculture stands. In these cases, native wetland vegetation is non-existent. Treatment of the monoculture stands is not therefore expected to impact native vegetation. Adjacent areas may contain other vegetation; however, drift will be minimized by applying in accordance with the label as well as using ground treatment where aerial spray is not feasible or could drift.

3(a) Agency Jurisdiction. The State Water Control Board promulgates Virginia's water regulations, covering a variety of permits to include the Virginia Water Protection Permit (VWPP), Virginia Pollutant Discharge Elimination System (VPDES) Permit, Virginia Pollution Abatement Permit, and the Surface and Groundwater Withdrawal Permit.

(i) Virginia Water Protection Permit

The VWPP governs wetlands, surface water and surface water withdrawals/ impoundments. It also serves as § 401 Water Quality certification of the federal Clean Water Act § 404 permits for dredge and fill activities in waters of the United States. In addition to central office staff who review and issue VWPPs for transportation and water withdrawal projects, the six DEQ regional offices perform permit application reviews and issue permits for the covered activities.

(ii) Virginia Pollutant Discharge Elimination System Permit

DEQ issues individual VPDES permits to both municipal and industrial facilities. Permit requirements, special conditions, effluent limitations and monitoring requirements are determined for each facility on a site specific basis in order to meet applicable water quality standards. General permits are permits written for a general class of dischargers including Discharges of Storm Water Associated With Industrial Activity (9 VAC 25-151 (VAR 05)). The six DEQ regional offices perform permit application reviews and issue permits for the covered activities.

3(b) Agency Comments.

(i) Virginia Water Protection Permit

The VWPP program at DEQ's Tidewater Regional Office (DEQ-TRO) recommends that the Air Force file a Joint Permit Application (JPA) with the Virginia Marine Resources Commission for this proposed activity. The VWPP program staff will have the opportunity to review the JPA in accordance with Virginia Water Protection Permit Program Regulation (9 VAC 25-210 *et seq.*) and will determine whether a permit is required.

(ii) Virginia Pollutant Discharge Elimination System Permit

The VPDES program at DEQ-TRO finds that this action is regulated by the VPDES General Permit for Discharges Resulting from the Application of Pesticides to Surface Waters (9 VAC 25-800 *et seq.* (VAG87)). All activities must be conducted in accordance with the DEQ-issued general permit. The general permit can be found on the DEQ web site, or the Air Force may contact its DEQ Water Permit Writer for more information.

4. Air Quality. According to the SEA (page 15), aerial treatment at Fort Eustis typically would involve one rotor-wing aircraft. The helicopter would operate for a maximum of 20 hours. Additionally, ground treatment techniques would involve one 5-ton equivalent pesticide mixing truck that will operate a maximum of 20 hours to perform ground treatments. Emissions from this equipment have been calculated and a Record of Non-Applicability (RONA) has been prepared documenting compliance with the General Conformity Rule. The document concludes that there will be minimal environmental impact to air quality from this action.

4(a) Agency Jurisdiction. DEQ's Division of Air Pollution Control, on behalf of the State Air Pollution Control Board, develops and administers the *State Air Pollution Control Board Regulations for the Control and Abatement of Air* Pollution pursuant to the Air Pollution Control Law. DEQ is charged to carry out mandates of the state law and regulations as well as Virginia's federal obligations under the Clean Air Act as amended in 1990. The objective is to protect and enhance public health and quality of life through control and mitigation of air pollution. The Division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate regional office is directly responsible for issuing necessary permits to construct and operate all stationary sources in the region as well as monitoring emissions from these sources for compliance. As a part of this mandate, environmental documents for new projects to be undertaken in the State are also reviewed. Some projects require additional evaluation under the general conformity provisions of state and federal law.

4(b) Agency Findings. According to DEQ's Division of Air Program Coordination, the project site is in an ozone maintenance and emission control area for oxides of nitrogen (NOx) and volatile organic compounds (VOC).

4(c) Recommendation. The Air Force should take all necessary precautions to restrict the emissions of NOx and VOCs.

4(d) Requirements.

(i) Fugitive Dust

Fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 *et seq.* of the *Regulations for the Control and Abatement of Air Pollution.* These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

(ii) Open Burning

Project activities involving open burning or the use of special incineration devices must meet the requirements of 9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100 of the *Regulations* for open burning, and it may require a permit. The Air Force must contact DEQ-TRO prior to commencing any open burning activity. Open burning, in general, is permitted for this activity. However, open burning is expressly prohibited during ozone season (May, June, July, August, and September) in volatile organic compound emissions control areas as specified in 9 VAC 5-20-206. In addition, the *Regulations* provide for, but do not require, the local adoption of a model ordinance concerning open burning. The project proponent should contact City of Newport News officials to determine what local requirements, if any, exist.

5. Solid and Hazardous Waste Management. According to the SEA (page 8), these pesticides are specifically designed for dispersal into the environment particularly aquatic environments. They are non-flammable and non-volatile. Hazardous decomposition and hazardous polymerization do not occur. Neither imazapyr nor glysophate are listed by the US Environmental Protection Agency (EPA) as subject to Toxic Chemical Release Inventory (TRI) or Extremely Hazardous Substances (EHS) reporting under the Emergency Planning and Community Right To Know Act (EPCRA). Any remaining herbicide will be retained by the contractor for future use. Subsequently, no waste is expected to be generated and therefore not increase the volume of waste generated by Fort Eustis or create new waste streams.

5(a) Agency Jurisdiction. Solid and hazardous wastes in Virginia are regulated by the Virginia Department of Environmental Quality, the Virginia Waste Management Board (VWMB) and the U.S. Environmental Protection Agency. They administer programs created by the federal Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability ("Superfund") Act, and the Virginia Waste Management Act. DEQ administers regulations established by the Waste Management Board and reviews permit applications for completeness and conformance with facility standards and financial assurance requirements. All Virginia localities are required, under the *Solid Waste Management Planning Regulations*, to identify the strategies they will follow on the management of their solid wastes, to include items such as facility siting, long-term (20-year) use, and alternative programs such as materials recycling and composting.

5(b) Agency Comments. According to DEQ's Division of Land Protection and Revitalization (DEQ-DLPR), waste issues were generally addressed in the submittal. All herbicides and methods used to distribute the herbicides are recognized treatments for controlling this reed growth. Any unused herbicides will be the responsibility of the contractor, and will be managed under guidelines provided by the manufacturer.

5(c) Requirements.

(i) Federal Facilities Program

According to the DEQ Federal Facilities program staff, the project engineer must provide a copy of the *Environmental Assessment of Control of Phragmites australis*, dated September 2004 to the facility Restoration Program Manager.

(ii) Solid and Hazardous Waste Management

Any soil that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations.

5(d) Recommendation. DEQ encourages all projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All hazardous wastes should be minimized, and managed properly.

6. Subaqueous Lands. The SEA does not discuss potential project impacts on subaqueous lands.

6(a) Agency Jurisdiction. The Virginia Marine Resources Commission (VMRC), pursuant to Virginia Code section 28.2-1200 *et seq.*, has jurisdiction over any encroachments in, on, or over any state-owned rivers, streams, or creeks in the Commonwealth.

VMRC serves as the clearinghouse for the Joint Permit Application used by the:

- VMRC for encroachments on or over state-owned subaqueous beds as well as tidal wetlands;
- U.S. Army Corps of Engineers (Corps) for issuing permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act;
- DEQ for issuance of a Virginia Water Protection Permit; and
- local wetlands board for impacts to wetlands.

6(b) Agency Findings. Based on the information presented in the SEA, VMRC finds that the proposed activities will occur landward of mean low water and, therefore, will not occur within VMRC's jurisdiction over state-owned subaqueous land. However, any jurisdictional impacts would be reviewed by VMRC during the Joint Permit Application process.

For additional information, contact VMRC, Mike Johnson at (757) 247-2255.

7. Non-point Source Pollution Control. The SEA does not discuss nonpoint source pollution control since project activities do not include land disturbance.

7(a) Jurisdiction. The Department of Conservation and Recreation's Division of Stormwater Management (DCR-DSM) administers the *Virginia Erosion and Sediment Control Law and Regulations* (*VESCL&R*) and *Virginia Stormwater Management Law and Regulations* (*VSWML&R*).

7(b) Agency Findings. DCR-DSM confirms that the proposed method for the control of the common reed does not involve land disturbance. Therefore, there are no requirements under *VESCL&R* and *VSWML&R*.

For additional information, contact DCR-DSM, John McCutcheon at (804) 371-7440.

8. Chesapeake Bay Preservation Areas. The SEA does not discuss impacts to areas analogous to Chesapeake Bay Preservation Areas since project activities do not include land disturbance.

8(a) Agency Jurisdiction. The Department of Conservation and Recreation's Division of Stormwater Management Local Implementation (LI) (formerly the Division of Chesapeake Bay Local Assistance) administers the Chesapeake Bay Preservation Act (Virginia Code sections 10.1-2100 through 10.1-2114) and *Chesapeake Bay Preservation Area Designation and Management Regulations* (9 VAC 10-20 *et seq.*).

8(b) Agency Findings. DCR-DSM confirms that the proposed method for the control of the common reed does not involve land disturbance. Therefore, there are no requirements under *Chesapeake Bay Preservation Area Designation and Management Regulations*.

For additional information, contact DCR-DSM-LI, Nancy Miller at (804) 225-3441.

9. Drinking Water. According to the SEA (pages 15-16), the Newport News Water Works supplies drinking water to Fort Eustis. Water supplies for Fort Eustis and other local municipal customers originate in the Harwood Mills Reservoir and the Lee Hall Reservoir outside of the Fort Eustis boundary. No drinking water intake systems exist at Fort Eustis. Several groundwater withdrawal wells exist within Mulberry Island. These wells contain non-potable water used for various purposes. As discussed in the 2004 EA, no spraying occurs near the groundwater well locations at Fort Eustis.

9(a) Agency Jurisdiction. The Virginia Department of Health (VDH), Office of Drinking Water (ODW) reviews projects for the potential to impact public drinking water sources (groundwater wells and surface water intakes).

9(b) Agency Comments. The Department of Health has no comments on this project.

For additional information, contact VDH-ODW, Diedre Forsgren at (804) 864-7241.

10. Forest Resources. The SEA (page 17) states that most of the aerial spraying will avoid forested areas. Appropriate procedures will be implemented to reduce the risk of drift. Some trees may be associated with wetlands areas and may be adjacent to the targeted areas. However, few trees are expected to be exposed to the herbicide. Additionally, trees will be at a lower risk due to the lateness in the year (October) and will be entering dormancy.

10(a) Agency Jurisdiction. The mission of the Virginia Department of Forestry (VDOF) is to protect and develop healthy, sustainable forest resources for Virginians. VDOF was established in 1914 to prevent and suppress forest fires and reforest bare lands. Since the Department's inception, it has grown and evolved to encompass other protection and management duties including: protecting Virginia's forests from wildfire, protecting Virginia's waters, managing and conserving Virginia's forests, managing state-owned lands and nurseries, and managing regulated incentive programs for forest landowners.

10(b) Agency Comments. VDOF has no comments on the phragmites control project.

For additional information, contact VDOF, Buck Kline at (434) 220-9035.

11. Historic Structures and Archaeological Resources. According to the SEA (page 18), an extensive archaeological survey was completed at Fort Eustis in 1989 that indentified two hundred and sixteen archeological sites. Additional archaeological survey has lead to the identification of fourteen additional sites. Three sites are listed on the National Register of Historic Places (NRHP) and another fourteen have been determined eligible for listing on the NRHP. Excavation is not expected to be a major tool in common reed management and its use in general is expected to be limited. Any opportunities arising where this technique can be utilized will require archaeological surveys with follow-on consultation with the State Historic Preservation Officer.

11(a) Agency Jurisdiction. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources under its jurisdiction. DHR, as the designated State's Historic Preservation Office, ensures that federal actions comply with *Section 106 of the National Historic Preservation Act of 1966* (NHPA), as amended, and its implementing regulation at 36 CFR Part 800. The NHPA requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. Section 106 also applies if there are any federal involvements, such as licenses, permits, approvals or funding.

11(b) Agency Comments. Consistent with statements in the SEA described above, DHR requests that the Air Force consult directly with DHR, as necessary, pursuant to Section 106 of the National Historic Preservation Act (as amended) for any ground disturbing activities that have the potential to affect archaeological properties.

12. Regional and Local Concerns.

12(a) Jurisdiction. In accordance with the Code of Virginia, Section 15.2-4207, planning district commissions encourage and facilitate local government cooperation and state-local cooperation in addressing, on a regional basis, problems of greater than local significance. The cooperation resulting from this is intended to facilitate the recognition and analysis of regional opportunities and take account of regional influences in planning and implementing public policies and services. Planning district commissions promote the orderly and efficient development of the physical, social and economic elements of the districts by planning, and encouraging and assisting localities to plan, for the future.

12(b) Regional Comments. The Hampton Roads Planning District Commission reviewed the SEA and consulted with the City of Newport News regarding the project. According to the PDC, the project appears to be consistent with local and regional plans and policies, and the PDC agrees with the finding of No Significant Impact.

12(c) Local Comments. The City of Newport News has no comment on this project.

For additional information, contact HRPDC, John Carlock at (757) 420-8300 or the City of Newport News, Sheila Mcallister at (757) 926-3832.

REGULATORY AND COORDINATION NEEDS

1. Wildlife Resources. DGIF recommends that the Air Force coordinate with the U.S. Fish and Wildlife Service (FWS) to ensure that an eagle take permit is not necessary for possible impacts within the James River Bald Eagle Concentration Zone. The inquiry should be directed to the Virginia Field Office of FWS, Cindy Schultz at (804) 693-6694).

DGIF maintains a database of wildlife locations. DGIF's database may be accessed at http://vafwis.org/fwis/ or contact DGIF, Gladys Cason at (804) 367-6872 or Gladys.cason@dgif.virginia.gov.

2. Water Quality and Wetlands. A Joint Permit Application may be submitted to VMRC for potential impacts to surface waters. The JPA will be distributed to DEQ to determine whether project activities would require authorization under the Virginia Water Protection Permit program (9 VAC 25-210 *et seq.*). For additional information contact DEQ-TRO, Bert Parolari at (757) 518-2166.

Project authorization under the Virginia Pesticide General Permit (VAG87) should be coordinated with the DEQ Water Permit Writer for Fort Eustis. For additional information and coordination, contact DEQ-TRO, Mark Sauer at (757) 518-2105.

3. Air Quality. This project may be subject to air quality regulations administered by the Department of Environmental Quality. The following sections of Virginia Administrative Code are applicable:

- 9 VAC 5-50-60 *et seq.* governing fugitive dust emissions; and
- 9 VAC 5-130 *et seq.*, for open burning.

To coordinate with DEQ-TRO regarding open burning activities or other aspects of air pollution control, contact Troy Breathwaite at (757) 518-2106.

4. Waste Management. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. Some of the applicable state laws and regulations are:

- Virginia Waste Management Act (Code of Virginia Section 10.1-1400 *et seq.*);
- Virginia Hazardous Waste Management Regulations (VHWMR) (9 VAC 20-60);
- Virginia Solid Waste Management Regulations (VSWMR) (9 VAC 20-81);
- Virginia Vegetative Waste Management Regulations (9 VAC 20-101 *et seq.*); and
- Virginia Regulations for the Transportation of Hazardous Materials (9 VAC 20-110).

Some of the applicable Federal laws and regulations are:

- Resource Conservation and Recovery Act (RCRA) (42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations); and

U.S. Department of Transportation Rules for Transportation of Hazardous materials (49 CFR Part 107).

A copy of the *Environmental Assessment of Control of Phragmites australis* (September 2004) may be sent to:

Amber Michel, Restoration Program Manager
AGEISS, Inc., 733d MSG/CED/AMF/EE
1407 Washington Boulevard, JBLE (Fort Eustis)
Virginia 23604-5306

Phone: 757-878-4123, extension 296
Fax: 757-878-4589
Email: amber.a.michel.ctr@mail.mil

5. Historic and Archaeological Resources. Coordination of this proposed action under Section 106 of the *National Historic Preservation Act of 1966*, as amended, and its implementing regulation 36 CFR 800, may be accomplished by contacting DHR, Roger Kirchen at (804) 482-6091.

Thank you for the opportunity to comment on the SEA submitted for the control of the common reed (*Phragmites australis*) at Fort Eustis in the City of Newport News. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4325 or John Fisher at (804) 698-4339 for clarification of these comments.

Sincerely,

Ellie L. Irons, Program Manager
Environmental Impact Review

enclosures

Ec: Amy M. Ewing, DGIF
Keith R. Tignor, VDACS
Roberta Rhur, DCR
Barry Matthews, VDH
Steve Coe, DEQ-DLPR
Kotur S. Narasimhan, DEQ-DAPC
Cindy Keltner, DEQ-TRO
Tony Watkinson, VMRC
Buck Kline, VDOF
Roger W. Kirchen, DHR
John M. Carlock, HRPDC
Sheila Mcallister, City of Newport News

RECEIVED
AUG 15 2012
DEQ-Office of Environmental Impact Review

DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

August 15, 2012

PROJECT NUMBER: 12-140F

PROJECT TITLE: Control of Common Reed at Joint Base Langley-Fort Eustis

As Requested, TRO staff has reviewed the supplied information and has the following comments:

Petroleum Storage Tank Cleanups:
No comments.

Petroleum Storage Tank Compliance/Inspections:
No comments.

Virginia Water Protection Permit Program (VWPP):
We advise Joint Base Langley-Fort Eustis to file a Joint Permit Application (JPA) for this proposed activity. The VWP Program staff will review the JPA in view of 9VAC25-210, and will determine whether a permit is required.

Air Permit Program :
No comments on the proposed action. However, if open burning is considered at any point as part of this action, Joint Base Langley-Fort Eustis will need to contact the Tidewater Regional Office prior to commencing any open burning activity. Open burning, in general, is permitted for this activity. However, open burning is expressly prohibited during ozone season (May, June, July, August, and September) in volatile organic compound emissions control areas as specified in 9 VAC 5-20-206. Newport News is considered a part of the Hampton Roads Emissions Control Area and, thus, would be subject to the ozone season open burning ban.

Water Permit Program :
This action is regulated by the Virginia Pesticide General Permit, VAG87. All activities must be in accordance with this DEQ General Permit. The general permit can be found on the DEQ web site, or the Base staff may contact its DEQ Water Permit Writer for more information.

Ground Water – No comments

Waste Permit Program :
No comments

Fisher, John (DEQ)

From: Johnson, Mike (MRC)
Sent: Monday, July 30, 2012 4:20 PM
To: Fisher, John (DEQ)
Subject: Control of Common Reed (P. australis) at Joint Base Langley - Fort Eustis, VA

Mr John E. Fisher,
Please be advised that the Commission, pursuant to Section 28.2-1200 et seq of the Code of Virginia, has jurisdiction over any encroachments in, on, or over the beds of the bays, ocean, rivers, streams, or creeks which are the property of the Commonwealth. Based upon the documentation provided to VMRC it appears that the proposed work will occur landward of mean low water and will not be within VMRC's jurisdiction of State-owned subaqueous bottom. Any jurisdictional impacts will be reviewed by VMRC during the Joint Permit Application process. Thank you for the opportunity to comment.

Mike Johnson
Habitat Management Division
VMRC
2600 Washington Ave.
Newport News, Va 23607
757-247-2255

RECEIVED
AUG 15 2012
DEQ-Office of Environmental Impact Review

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

TO: John Fisher, Environmental Program Planner

FROM: Steve Coe, Division of Land Protection & Revitalization Review Coordinator

DATE: August 15, 2012

COPIES: Sanjay Thirunagari, Division of Land Protection & Revitalization Review Manager; EIR file

SUBJECT: Environmental Impact Statement: Project #12-140F. Control of Common Reed at Joint Base Langley-Fort Eustis, Virginia. DOD/Dept of the Air Force.

The Division of Land Protection & Revitalization (DLPR) has completed its review of the Environmental Review Request for the Control of Common Reed at Joint Base Langley-Fort Eustis, Virginia. DOD/Dept of the Air Force.

The project consists of the controlling common reed (Phragmites australis) with aerial spraying of herbicides as the primary method, with follow-up treatment with herbicides via ground techniques where aerial spraying is not feasible.

Waste issues were generally addressed in the submittal. All herbicides and methods used to distribute the herbicides are recognized treatments for controlling this reed growth. Any unused herbicides will be the responsibility of the contractor, and will be managed under guidelines provided by the manufacturer. The Environmental Assessment of the project indicates that implementation of the proposed action would not result in significant impacts to the environment and environmental resources.

DEQ Federal Facilities staff have reviewed the submittal, and requested that the project engineer provide a copy of the Environmental Assessment of Control of Pharagmites australis dated September 2004 to:

Amber Michel, Restoration Program Manager
AGEISS, Inc., 733d MSG/CED/AMF/EE
1407 Washington Boulevard, JBLE (Fort Eustis)
Virginia 23604-5306
Phone: 757-878-4123, extension 296
Fax: 757-878-4589
Email: amber.a. Michel.ctr@mail.mil

Douglas W. Domenech
Secretary of Natural Resources

David A. Johnson
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street
Richmond, Virginia 23219-2010
(804) 786-1712

MEMORANDUM

DATE: August 14, 2012

TO: John Fisher, DEQ

FROM: Roberta Rhur, Environmental Impact Review Coordinator

SUBJECT: DEQ 12-140F, CONTROL OF COMMON REED (PHRAGMITES AUSTRALIS) AT JOINT BASE LANGLEY-FORT EUSTIS

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Marshy Point Conservation Site is within the project area. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. Marshy Point Conservation Site has been given a biodiversity significance ranking of B5, which represents a site of very high significance. The natural heritage resource of concern at this site is:

Haliaeetus leucocephalus	Bald eagle	G5/S2S3B,S3N/NL/LT

The Bald eagle (*Haliaeetus leucocephalus*, G5/S2S3B,S3N/NL/LT) breeds from Alaska eastward through Canada and the Great Lakes region, along coastal areas off the Pacific and Atlantic Oceans, and the Gulf of Mexico, and in pockets throughout the western United States (NatureServe, 2009). In Virginia, it primarily breeds along the large Atlantic slope rivers (James, Rappahannock, Potomac, etc) with a few records at inland sites near large reservoirs (Byrd, 1991). Bald eagle nest sites are often found in the midst of large wooded areas near marshes or other bodies of water (Byrd, 1991). Bald eagles feed on fish, waterfowl, seabirds (Campbell et. al., 1990), various mammals and carrion (Terres, 1980). Please note that this species is currently classified as threatened by the Virginia Department of Game and Inland Fisheries (VDGIF).

Literature Cited

Byrd, M.A. 1991. Bald eagle. In Virginia's Endangered Species: Proceedings of a Symposium. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia. Pp. 499-501.

Campbell, R.W., N.K. Dawe, I. McTaggart-Cowan, J.M. Cooper, G.W. Kaiser, and M.C.E. McNall. 1990. The Birds of British Columbia. Vol. 1. Nonpasserines: Introduction and loons through waterfowl. Royal British Columbia Museum, Victoria, British Columbia, Canada.

Herkert, J. R., editor. 1992. Endangered and threatened species of Illinois: status and distribution. Vol. 2: Animals. Illinois Endangered Species Protection Board. iv + 142 pp.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: June 24, 2010)

Terres, J.K. 1980. The Audubon Society encyclopedia of North American birds. Alfred A. Knopf, New York.

Fisher, John (DEQ)

From: Ewing, Amy (DGIF)
Sent: Friday, August 17, 2012 4:59 PM
To: Ellis, Charles (DEQ)
Cc: Fisher, John (DEQ); Cason, Gladys (DGIF); nhreview (DCR); Cooper, Jeff (DGIF)
Subject: ESSLog# 33092_12-140F_Control of Common Reed at Ft. Eustis

We have reviewed the subject project that proposes to perform common reed control via aerial application on Ft. Eustis located in James City/Newport News, VA.

According to our records, State Threatened bald eagles have been documented from the project area. We recommend adherence to the currently approved INRMP for the installation, including adherence to the bald eagle protection requirements laid out in the Bald Eagle Management Plan developed with the USFWS. Assuming adherence to the protective measures included in that document, including no aerial spraying during the bald eagle nesting season, we do not anticipate the proposed work to result in adverse impacts upon the bald eagles using the nests on site.

This project also falls within the James River Bald Eagle Concentration Zone. Based on the scope and location of the proposed work, we do not anticipate it to result in adverse impacts upon bald eagles roosting and foraging in the area. However, as nothing specific was mentioned in the EA about having coordinated this bald eagle resources with the USFWS, we recommend that the project proponent coordinate with them to ensure that an eagle take permit is not necessary for possible impacts within the concentration zone.

Federal Endangered Atlantic sturgeon have been documented from the project area. It appears the project proponent has already coordinated this aspect of the project with NOAA Fisheries.

The James River and Skiffes Creek have been designated Anadromous Fish Use Areas. Based on the scope and location of the proposed work, we do not anticipate it to result in adverse impacts upon these resources.

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources.

Thanks, Amy

Amy Ewing
Environmental Services Biologist
VA Dept. of Game and Inland Fisheries
4010 W. Broad Street
Richmond, VA 23230
804-367-2211
amy.ewing@dgif.virginia.gov

HAMPTON ROADS PDC
PLANNING DISTRICT COMMISSION

August 16, 2012

AUG 15 2012

DEQ-Office of Environmental Impact Review

Mr. John E. Fisher
Virginia Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, VA 23219

Re: DEQ #12-140F, Control of Common Reed (Phragmites australis) at Joint Base Langley-Fort Eustis, Virginia (ENV: GEN)

Dear Mr. Fisher:

Pursuant to your request, the staff of the Hampton Roads Planning District Commission has reviewed the Supplemental Environmental Assessment for the following project, Control of Common Reed (Phragmites australis) at Joint Base Langley-Fort Eustis, Virginia, in the City of Newport News. We have consulted with city staff regarding this project.

Based on this review, the proposal appears to be consistent with local and regional plans and policies. HRPDC staff concurs with the Finding of No Significant Impact.

We appreciate the opportunity to review this project. If you have any questions, please do not hesitate to call.

Sincerely,

John M. Carlock, AICP
Deputy Executive Director

BJM/fh

Copy: Michael King, NN

Fisher, John (DEQ)

From: Kline, Everette (DOF)
Sent: Thursday, August 16, 2012 1:06 PM
To: Fisher, John (DEQ)
Subject: Fort Eustis Project DEQ #12-140F

John, VDOF has no comments on the phragmites control project proposed at Joint Base Langley-Fort Eustis.

Buck

Buck Kline
Director, Forestland Conservation Division
Virginia Department of Forestry
900 Natural Resources Drive, Suite 800
Charlottesville, VA 22903
Phone: 434-220-9035
FAX: 434-296-2369

Fisher, John (DEQ)

From: Ellis, Charles (DEQ)
Sent: Thursday, August 23, 2012 9:06 AM
To: Fisher, John (DEQ)
Subject: FW: DEQ#12-140F and DEQ#12-141F
Attachments: EIRNN 12-140F.PDF; EIRNN 12-141F.PDF

John – I think you may have the Newport News "no comment" (with the HRPDC comment attached) on your 12-140F. If not, here it is. The lady in Newport News told me she had sent both "no comments" to you.

Charlie

From: Mcallister, Sheila W. [mailto:smcallister@nngov.com]
Sent: Wednesday, August 22, 2012 5:03 PM
To: Ellis, Charles (DEQ)
Subject: FW: DEQ#12-140F and DEQ#12-141F

Attached are the City of Newport News' comments in coordination with HRPDC. The city of Newport News had no comments. The letters were sent to John Fisher in your organization.

Sincerely,
Sheila Mcallister
Director of Planning
City of Newport News
Newport News, Va 23607
757.926.3832
757.926.3639 (f)
smcallister@nngov.com

From: Lewis, Brian D.
Sent: Wednesday, August 22, 2012 5:00 PM
To: Mcallister, Sheila W.
Subject: FW: DEQ#12-140F and DEQ#12-141F

FYI

From: Ben McFarlane [mailto:bmcfarlane@hrpdcva.gov]
Sent: Thursday, August 16, 2012 11:19 AM
To: Fisher, John (DEQ) (John.Fisher@deq.virginia.gov)
Cc: John Carlock; King, Michael S.; Lewis, Brian D.
Subject: DEQ#12-140F and DEQ#12-141F

Mr. Fisher,

Attached are HRPDC's comment letters for DEQ#12-140F, Control of Common Reed (Phragmites australis) at Joint Base Langley –Fort Eustis, Virginia, and DEQ#12-141F, Maintenance Dredging of the Skiffes Creek Federal Navigation Channel at the Joint Base Langley Eustis. Please let me know if you have any questions.

Benjamin J. McFarlane, AICP

Christensen, Timothy P CIV (US)

From: Mike_Drummond@fws.gov
Sent: Thursday, July 26, 2012 9:07 AM
To: Christensen, Timothy P CIV (US)
Subject: Langley-Eustis Phragmites Control & Skiffes Creek Dredging

We recently received the project packages for the above mentioned projects. Due to workload issues and prioritization efforts within the Service, we now have an on-line project review process that we require all projects to go through. Please go to the following website and step through the process carefully. Part of this process will take you to the IPaC system where you will delineate your action area and produce an "Official Species List" (an important part of this process). The creation of this official species list will generate a record in our tracking database, and also provide you with a list of potential species within your action area. Another important part of the process is the creation of a "Species Conclusion Table" which will help you to make determinations for any species listed. This process will also enable you to determine if you have any bald eagle nesting or concentration area issues which will require you to obtain an eagle permit. Please read carefully, and step through the process, once done you will have a completed project review package that you can submit to us if your determinations are anything other than "no effect" for all species listed. If you have no issues, this process also allows you to print out an on-line project review certification letter, and you are finished with the review process.

At our website, you will also find lists of approved species surveyors, if you need to have habitat assessments or full surveys, this are individuals who are already approved. This does not mean that you have to use any of these individuals, you will also find on our website information on how to become an approved surveyor. If you have any questions, please feel free to contact me.

PROJECT REVIEWS IN VIRGINIA:
http://www.fws.gov/northeast/virginiafield/endspecies/Project Reviews Introduction.html

Mike Drummond
Endangered Species Biologist
U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061
(804) 693 - 6694 x122

<http://www.fws.gov/northeast/virginiafield/endspecies/bavonproject.html>
<http://www.fws.gov/northeast/virginiafield/endspecies/bavonproject.html>

MEMORANDUM FOR RECORD

SUBJECT: US Fish & Wildlife Service Comments to SEA for Common Reed Control

On/about 20 July 2012, a copy of the draft Supplemental Environmental Assessment (SEA) for continued management of invasive common reed was mailed to the US Fish and Wildlife Service (USFWS) with a cover letter dated 18 Jul 2012. On 26 July 2012, a response was received via email (enclosure 1). This response did not provide specific feedback from USFWS but rather directions to a website to self-assess whether impacts exist to federally listed species and bald eagles.

It was determined that the only possible federally listed species is the sensitive joint-vetch. This plant is not documented on Fort Eustis per the *Plant Survey and Herbarium Collection Final Report, Fort Eustis and Fort Story*, January 2001 and *Fort Eustis Timber Inventory and Forest Management Plan*, October 2007.

Bald eagles are known to occur on the installation and known nest sites have GIS information. No herbicide treatments will occur during the breeding season and nest sites will be avoided. Military rotorwing aircraft currently operate at Fort Eustis. Aircraft used for common reed control is similar to some of the military aircraft and will be used for a short duration of operation.

Several attempts were made to use this assessment tool; however, no definitive printable results could be achieved. Nonetheless, no significant impact to bald eagles or joint-vetch is anticipated by this action.

18 Sep 2012

TIMOTHY P. CHRISTENSEN
GS-12
Environmental and Natural Resources Specialist

IPaC - Information, Planning, and Conservation System

Environmental Conservation Online System

Step 1
Location

Step 2
Activities

Step 3
Trust resources list

Step 4
Conservation measures

Natural Resources of Concern

Back | C

Save or Print the Preliminary Species list

Request an Official Species list

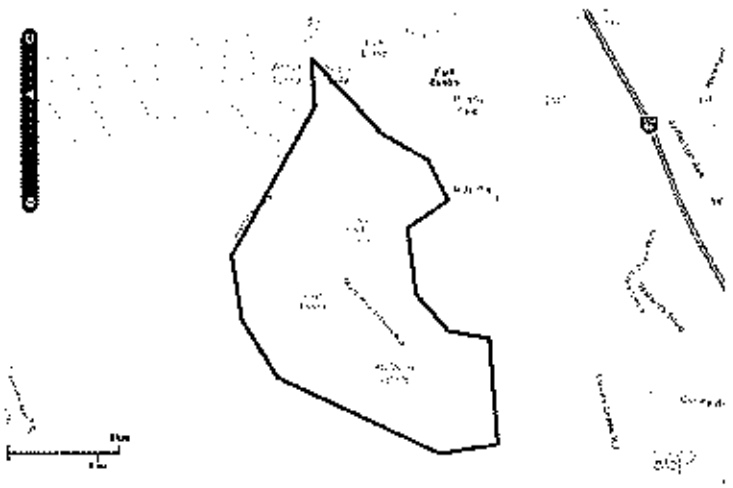
An online Endangered Species Act species list IS available on this page for your project area, represented by the office(s) listed below.

The Endangered Species Act species list below is for planning purposes only -- it is not an official species list.

To request an official species list, click the **Request an Official Species list** link to the right and follow the instructions.

VIRGINIA ECOLOGICAL SERVICES FIELD OFFICE
6669 SHORT LANE
GLOUCESTER, VA 23061
(804) 693-6694
http://www.fws.gov/northeast/virginiafield/

Project location map:



Project Counties:
Newport News, VA

Project type: Biological Control

IPaC - Information, Planning, and Conservation System

Environmental Conservation Online System
IPaC Home Page | Initial Project Scoping | Project Builder | FAQs

Step 1
Location

Step 2
Activities

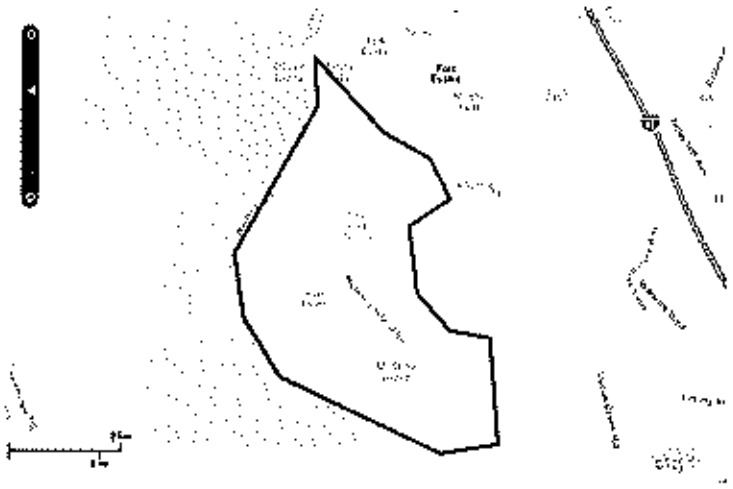
Step 3
Trust resources list

Step 4
Conservation measures

Conservation Measures (CM) Report

Caution!
This portion of the IPaC system is still under development and testing by the U.S. Fish & Wildlife Service. Conservation Measures obtained at this time should not be used as authoritative recommendations for your project.

Project location map:



Project Counties:
Newport News, VA

Project type: Biological Control

Conservation Measures (Grouped by Category)

FWS Endangered Species conservation measures are not available for your project online.

Last updated: September 18, 2012
ECOS Home | Contact Us
U.S. Fish and Wildlife Service Home Page | Department of the Interior | USA.gov |
About the U.S. Fish and Wildlife Service | Accessibility | Privacy | Notices | Disclaimer | FOIA
Search

Species Conclusions Table

Project Name: Control of Common Reed

Date: 18 September 2012

Species / Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
Sensitive joint-vetch (*Aeschynomene virginica*)	This plant is not documented at Fort Eustis.	Not applicable	Verified by the "Plant Survey and Herbarium Collection Final Report, Fort Eustis and Fort Story, January 2001 and Fort Eustis Timber Inventory and Forest Management Plan, October 2007.
Bald eagle	Documented on Fort Eustis as discussed in the Supplemental Environmental Assessment (SEA)	Not applicable	Nest sites are inventoried and GIS shapefiles exist. As discussed in the SEA, control efforts will not occur during breeding season. Aircraft and ground techniques are conducted to avoid nest sites. Aircraft will postpone a treatment if bald eagles are observed during operations.

Appendix C

Daily Press Notices and Public Comments

Public Notice

Joint Base Langley-Eustis, Fort Eustis Notice of Availability

Notice is hereby given that Joint Base Langley-Eustis, Fort Eustis has prepared a draft Supplemental Environmental Assessment (EA) evaluating the potential impacts of controlling the invasive plant common reed (*Phragmites australis*) at Fort Eustis. This project has conducted periodically following the preparation of an EA (with a subsequent finding of no significant impact) prepared in 2004. However, recently there have been some changes federal regulations and biological resources at Fort Eustis. Subsequently, a draft Supplemental EA (with a draft FONSI) to the 2004 EA has been prepared and is available for public comment as part of the analytical process. The documents can be accessed from Groninger Library (BLDG 1313, Fort Eustis), Grissom Public Library (366 DeShazor Drive, Newport News, VA 23606) and Christopher Newport University Library (1 University Place, Newport News, VA 23606). Please send comments within 30 days of this notice to Timothy Christensen, Joint Base Langley-Eustis, Civil Engineer Division, 1407 Washington Blvd, Fort Eustis, VA 23604 or via email to Timothy.P.Christensen.civ@mail.mil.

7870308

COMMONWEALTH OF VIRGINIA
CITY OF NEWPORT NEWS

This day, personally appeared before me, George Hunt, and made oath as follows:

1. He is employed in the Office Services Department of the Daily Press, Inc., a newspaper publishing company in the City of Newport News, Virginia.

The attached advertisement was published for ***2*** insertion(s) in the *Daily Press,*

July 22, 2012 and ending on *July 25, 2012*

George Hunt

July 27, 2012
Date

Subscribed and sworn before me

This 27th day of *July*, 2012.

My commission expires: December 31, 2016.

Yvette R. Causey
NOTARY PUBLIC

Registration Number: 7513218

YVETTE R. CAUSEY
NOTARY PUBLIC
REG. #7513218
MY COMMISSION EXPIRES
12/31/2016
COMMONWEALTH OF VIRGINIA

PUBLIC NOTICE

Joint Base Langley-Eustis Fort Eustis Notice of Availability

Supplemental Environmental Assessment for Control of Common Reed

Notice is hereby given that Joint Base Langley-Eustis Fort Eustis has prepared a draft Supplemental Environmental Assessment (SEA) evaluating the potential impacts of controlling the invasive plant common reed (Phragmites australis) at Fort Eustis. This project has conducted periodically following the preparation of an EA with a consequential Finding of No Significant Impact (FONSI) prepared in 2004. However, recently there have been some changes federal regulations and biological resources at Fort Eustis. Subsequently, a draft SEA (with a draft FONSI) to the 2004 EA has been prepared and is available for public comment as part of the analytical process. The documents can be accessed from Groninger Library (BLDG 1313, Fort Eustis), Grissom Public Library (380 Dashazor Drive, Newport News, VA 23606) and Christopher Newport University Library (1 University Place, Newport News, VA 23606). Please send comments within 30 days of this notice to Timothy Christensen, Joint Base Langley-Eustis, CMI Engineer Division, 1407 Washington Blvd, Fort Eustis, VA 23604 or via email to Timothy.P.Christensen.civ@mail.mil.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, 733D MISSION SUPPORT GROUP
JOINT BASE LANGLEY-EUSTIS
Civil Engineer Division
1407 Washington Blvd
FORT EUSTIS, VIRGINIA

JUL 19 2012

Environmental Element

Dear Sir/Madame:

Joint Base Langley-Eustis, Fort Eustis prepared a Supplemental Environmental Assessment (SEA) in accordance with Title 32 of the Code of Federal Regulations Part 989 and Title 40 of the Code of Federal Regulations Part 1500-1508. These federal regulations refer to the National Environmental Policy Act (NEPA) where federal actions are assessed to determine whether such actions will significantly impact our environment.

This SEA was prepared to assess continued control of the invasive plant known as Common Reed (*Phragmites australis*) at Fort Eustis, VA. Common reed causes damage to wetland ecosystems by dramatically out-competing native vegetation. Consequently, this greatly reduces the biodiversity as well as posing as wildland fire hazards. An Environmental Assessment (EA) was prepared in 2004, and it did not reflect significant impacts from this action. However, several changes in federal regulations as well as biological resources have occurred since 2004 that require additional environmental impact analysis. In accordance with Title 32 of the Code of Federal Regulations Part 989 a draft Supplemental Environmental Assessment (SEA) has been prepared. As a result of this additional analysis, Joint Base Langley-Eustis initially determined that no significant impact on respective resources will occur and a draft Finding of No Significant Impact (FONSI) has been prepared.

Please find the draft SEA and respective draft FONSI along with the original EA on the enclosed compact disk. Please provide comments by 24 August 2012. Comments can be sent via regular mail to:

733 Mission Support Group
Civil Engineer Division (ATTN: Mr. Christensen)
1407 Washington Blvd
Fort Eustis, VA 23604

Sincerely,

Susan P. Miller
Chief, Environmental Element

Cover Letter + hardcopy placed at Grissom Library, Grainger Library and Christopher Newport University Library on 19 July 2012

MEMORANDUM FOR RECORD

SUBJECT: Public Comments to Supplemental Environmental Assessment (SEA) for Common Reed Control

Announcements for the SEA for Common Reed Control were posted in the Daily Press newspaper July 22-25, 2012.

No public comments or inquiries were received via phone, email or in writing.

18Sep2012

TIMOTHY P. CHRISTENSEN
GS-12
Environmental and Natural Resources Specialist

Appendix D

Record of Non-Applicability (RONA)

General Conformity – Record of Non-Applicability

Date Prepared: 21 June 2012

Project Name: Control of Common Reed (phramites australis) Project 2012

Project Point of Contact: Tim Christensen
Civil Engineer Division, EE

Project Description: An estimated 600 acres of land on Fort Eustis is affected by common reed. This project will treat 600 acres. An estimated 500 acres will be treated via aerial spray and 100 acres shall be treated by ground techniques.

Begin Date: August 2012.

End Date:

General Conformity under the Clean Air Act, Section 176 has been evaluated for the project described above according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this project because:

40 CFR 93.153 (c) (2) (iv): Routine maintenance and repair activities, including repair and maintenance of administrative sites, roads, trails and facilities.

Michael Shaffer
Environmental Protection Specialist

General Conformity – Record of Non-Applicability

Date Prepared: 21 June 2012

Project Name: Control of Common Reed (phramites australis) Project 2012

Project Point of Contact: Tim Christensen
Civil Engineer Division, EE

Project Description: An estimated 600 acres of land on Fort Eustis is affected by common reed. This project will treat 600 acres. An estimated 500 acres will be treated via aerial spray and 100 acres shall be treated by ground techniques.

Begin Date: August 2012.

End Date:

General Conformity under the Clean Air Act, Section 176 has been evaluated for the project described above according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this project because:

40 CFR 93.153 (c) (2) (iv): Routine maintenance and repair activities, including repair and maintenance of administrative sites, roads, trails and facilities.

Michael Shaffer
Environmental Protection Specialist

Appendix E

Environmental Assessment for Control of Common Reed, 2004

Finding of No Significant Impact (FONSI)
Control of *Phragmites australis*
at the
US Army Transportation Center, Fort Eustis, Virginia

Pursuant to the Council on Environmental Quality Regulations (40 CFR Parts 1500-1508) for implementing the procedural provisions of the National Environmental Policy Act (42 U.S.C. 4321 et seq.), Title 32 of the Code of Federal Regulation Part 651, and Army Regulation 200-2 (*Environmental Effects of Army Actions*), an Environmental Assessment (EA) was prepared by the US Army Transportation Center and Fort Eustis, to evaluate the potential environmental effects associated with the proposed project to control of an invasive plant species the common reed (*Phragmites australis)* at Fort Eustis, Virginia.

Proposed Action

The US Army, Fort Eustis proposes to conduct an aerial spray of stands of *Phragmites australis* at its installation with the intent of controlling the spread of this invasive plant species. Aerial spray will be the primary means of reducing *Phragmites* stands; however, limited controlled burns and ground spray methods may be used to augment aerial spray if feasible. Fort Eustis comprises 8,228 acres of land of which 2,212 acres are tidal and non-tidal wetlands. The common reed *Phragmites australis* continues to expand into more wetlands areas where it out competes native wetlands species thereby reducing the ecological and overall value of these areas. Biodiversity and functions of wetlands are reduced, aesthetics become marred, training opportunities are degraded and security along the installation boundaries becomes compromised. Additionally, a shoreline stabilization project recently initiated to prevent erosion of Harrison Road (located along the James River) could be compromised by *Phragmites australis* expansion. Stabilization of Harrison Road includes planting of *Spartina* spp. to reduce the erosional effect of wave action on the road. Additionally, the *Spartina* marsh includes the added benefit of aesthetics, improvement of sport fishing opportunities and recreational wildlife watching. *Phragmities* expansion into this new marsh could remove the *Spartina spp.*

Several control measures were evaluated with aerial spray being the primary means. An estimated 500 acres of land containing *Phragmites* would be treated. These areas are primarily located outside the installation cantonment area. One treatment per year for up to three years would occur in the month of October beginning in 2004.

Spraying will involve a UH-12 Raven rotor wing aircraft (or similar aircraft) equipped with 30-gallon capacity spray tanks. The applicator will be a state certified and licensed aerial pesticide applicator. The herbicide will contain glysophate as its active ingredient such as Rodeo, which is specifically designed for use against invasive plant species (to include *Phragmites*) in aquatic environments. A quantity of 4-6 pints of herbicide will be used to treat one acre.

Appropriate measures will be utilized to prevent drift of herbicide beyond the targeted areas in accordance with manufacturer instructions. The responsibility to prevent spray drift beyond the targeted area rests with the applicator who must be state certified and licensed for such work.

Alternatives

Several alternatives were considered; however, two were deemed unfeasible. In addition to the Proposed Alternative, a No Action Alternative was evaluated in detail.

FONSI: Control of *Phragmites australis* at the US Army Transportation Center, Fort Eustis, Virginia

Factors Considered in Determining that No Environmental Impact Statement is Required

The EA, which is incorporated by reference into this Finding of No Significant Impact, examined potential direct, indirect, and cumulative effects of the proposed action and the no action alternative on 13 resource areas of environmental concern.

The results of the EA found that certain environmental resources and conditions (air quality, water quality, aesthetics, wetlands, cultural resources, wildlife, forested lands, hazardous materials, waste generation, human health and safety, protection of children, Environmental Justice, noise, and installation restoration program sites) would not be affected by the proposed action. Implementation of the proposed action would not result in significant impacts to these resources.

Conclusion

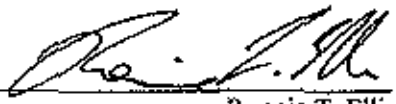
The proposed project of controlling *Phragmites* primarily via aerial spraying was analyzed by considering all environmental resource areas that could be affected and by comparing to a no action alternative. Impacts to the natural environment as well as human health and safety were determined to be minimal while the quality of existing wetlands would be greatly enhanced in the long term following control of *Phragmites*.

Because no significant environmental impacts will result from this proposed project, preparation of an Environmental Impact Statement will not be required.

Public Comment

Interested parties were invited to review and comment on this FONSI and EA within 30 days of publication of the Notice of Availability in the *Daily Press*. Copies of the EA are available at Groninger Library (Bldg. 1313, Fort Eustis), Grissom Public Library (366 DeShazor Drive, Newport News, VA) and Christopher Newport University Library (1 University Place, Newport News, VA). Comments were to be provided to Mr. Tim Christensen by mail at the Commander, US Army Transportation Center and Fort Eustis, ATZF-PWE, Directorate of Public Works, Fort Eustis, VA 23604; by email at Tim.Christensen@eustis.army.mil; or by facsimile at 757-878-4589.

Date:_____



Ronnie T. Ellis
Colonel, US Army
Garrison Commander
Fort Eustis, Virginia

Environmental Assessment for Control of *Phragmites australis* at the US Army Transportation Center, Fort Eustis, Virginia

September 2004

Environmental Assessment for Control of *Phragmites australis* at the US Army Transportation Center, Fort Eustis, Virginia

September 2004

Review and Approval

Prepared by:

Timothy P. Christensen
GS-12
Environmental and Natural Resources Specialist
Environmental and Natural Resources Division
Directorate of Public Works
Fort Eustis, VA

Reviewed by:

Susan Bivins
Staff Judge Advocate
Fort Eustis, VA

Stephen A. McCall
Chief, Environmental and
Natural Resources Division
Fort Eustis, VA

David T. Bender
Colonel, US Army
Director of Public Works
Fort Eustis, VA

Approved by:

Ronnie T. Ellis
Colonel, US Army
Garrison Commander
Fort Eustis, VA

Table of Contents

I. Description of the Project.

The US Army, Fort Eustis proposes to conduct an aerial spray of *Phragmites australis* (common reed) at its installation with the intent of controlling the spread of this non-native invasive plant species. Aerial spray will be the primary means of controlling *Phragmites*; however, limited ground spraying methods and limited controlled burns may be used to augment aerial spray if feasible. Fort Eustis comprises 8,228 acres of land of which 2,212 acres are tidal and non-tidal wetlands. *Phragmites* continues to expand into wetlands areas where it out competes native wetlands species thereby reducing the ecological and overall value of these areas. Biodiversity and functions of wetlands are reduced, and the utility for training and security becomes compromised. Additionally, a shoreline stabilization project recently initiated to prevent erosion of Harrison Road (located along the James River) could be compromised by *Phragmites* expansion. Stabilization of Harrison Road includes planting of *Spartina* spp. to reduce the erosional effect of wave action on the road. Additionally, the *Spartina* marsh includes the added benefit of aesthetics, improvement of sport fishing opportunities and recreational wildlife watching. *Phragmites* expansion into this new marsh could out compete the *Spartina spp*.

The project involves implementing measures to reduce the significant stands of *Phragmites australis* that are degrading wetlands sites and those threatening the Harrison Road stabilization project. Several control measures were evaluated with aerial spray being the primary means of control. An estimated 500 acres of land containing *Phragmites* would be treated. These areas are primarily located outside the installation cantonment area. One treatment per year for up to three years would occur in the month of October beginning in 2004. The month of October is the ideal time frame to control Phragmites with herbicide because the plant continues to grow in this period. Other plants have begun entering dormancy in October and thus reducing damage to other plant species.

Spraying will involve a UH-12 Raven rotor wing aircraft (or similar aircraft) equipped with 30-gallon capacity spray tanks. The applicator will be a state certified and licensed aerial pesticide applicator. The herbicide will be that containing glysophate as its active ingredient such as Rodeo which is specifically designed for use against invasive plant species (to include *Phragmites*) in aquatic environments. A quantity of 4-6 pints of herbicide will be used to treat one acre.

This type of herbicide is intended to come in contact with the exterior surfaces of the plant (such as leaves and stems). It functions as a systemic herbicide that eventually reaches the root system to destroy the plant. In this case it remains in the environment for a short period of time. Glyphosate has no herbicidal or residual activity in the soil and therefore provides no lingering residual weed control. This application contrasts to pre-emergent herbicides that remain viable in the soil for lengthy periods of time to preclude seed germination.

Monitoring herbicide use and effectiveness is the keystone aspect of the Fort Eustis Integrated Pest Management Plan. Treated areas will be monitored following spraying to determine effectiveness. This will occur primarily through visual means during peak growing seasons. Extent of re-growth of *Phragmites* (or lack of) and that of desired vegetation will be documented.

Appropriate measures will be utilized to prevent drift of herbicide beyond the targeted areas in accordance with manufacturer instructions. The responsibility to prevent spray drift beyond the targeted area rests with the applicator who must be state certified and licensed for such work.

The following drift prevention requirements will be met:

1. The distance of the outer most nozzles on the boom must not exceed ¾ the length of the rotor of the aircraft.

2. Nozzles will always point backward parallel with the air stream and never pointed downwards more than 45 degrees. (or as determined by Virginia requirements).

3. Apply the largest herbicide droplet size that provides sufficient coverage and control. Nozzle orientations pointing backward and parallel to the air stream produce larger droplets than other nozzle orientations. This reduces drift potential.

4. Use high flow rate nozzles to apply the greatest practical spray volume.

5. Use lower spray pressures recommended for the nozzle (higher pressure reduces droplet size).

6. Use the minimum number of nozzles that provide uniform coverage.

7. Applications will not be made more than ten feet above the top of the tallest plants unless a greater height is necessary for aircraft safety.

8. Applications will occur when wind speed is between 2-10 miles per hour.

9. Applications will be avoided during hot and dry weather conditions.

10. Applications will be avoided during temperature inversions. This condition is representative of increasing temperatures with altitude and tends to occur during nights of limited cloud cover and light to no wind. While these conditions begin around sunset they may exist into the morning. Temperature inversion restricts vertical air mixing causing small suspended droplets to remain as a concentrated cloud.

11. Applications will be avoided during period of fog.

While aerial spray will be the primary method some limited ground spray activities may be used to augment the aerial spray if feasible.

The project does not involve any construction or demolition of facilities nor does it involve any excavation of soil in upland areas or sediments within wetlands or sub-aqueous lands.

Augmentation aerial spray with ground spraying and controlled burns may be utilized to a lesser extent. This comprises cases where aerial spray is not feasible due to accessibility or safety. Ground spraying with Rodeo would occur via 200-gallon vehicle-mounted power sprayer if the *Phragmites* can be accessible from road networks. In cases where road access is not possible, 4-gallon backpack manual sprayer could be utilized. Controlled burns would occur to a much lesser extent and only where either aerial or ground spraying is not feasible.

II. Purpose and Need.

The purpose of the proposed project is to control existing stands of *Phragmites* to improve the biodiversity of wetlands, prevent expansion into the Harrison Road stabilization project area and improve the land use value of affected areas at Fort Eustis. Executive Order 13112 (dated 3 February 1999) requires that Department of Defense installations control invasive plant species. Continued colonization and expansion of *Phragmites* reduces the biological diversity and functions of wetlands, reduces recreational opportunities, mars aesthetics, hampers security along installation boundaries, and degrades training opportunities. *Phragmites* out competes native vegetation and does not serve as an adequate food source for most native wildlife. Microhabitats utilized by smaller vertebrate organisms and invertebrate species are degraded or eliminated.

III. Alternatives Considered

This Environmental Assessment (EA) considered several alternatives for controlling *Phragmites* to include a No Action Alternative.

Alternatives considered but eliminated.

1. *Phragmites* Control Exclusively By Controlled Burn. This alternative was deemed unrealistic for several reasons. Controlled burns are limited by weather conditions and land use requirements. Favorable weather conditions cannot be planned more than one or two days in advance and sufficient time needed to complete the project may not be available. Furthermore, the large areas involved would require several burns and thus involve a longer timeframe as well as require considerable manpower. Based on the amount of area to be burned, considerable smoke may generated that otherwise could be disruptive to routine military operations or affect Newport News communities. Some of the areas remain too wet to facilitate burning. Furthermore, the literature indicates that burning as the only method encourages more active growth of *Phragmites*. This alternative was not considered further.

2. *Phragmites* Reduction by Excavation. Excavation of areas containing *Phragmites* would be logistically unfeasible and extremely expensive. Many areas would not be conducive to heavy operation equipment. Additionally, the hydrologic continuity would be greatly altered. This type of control measure would require obtaining appropriate permits from respective federal, state and local authorities. This alternative was not considered further.

Alternatives Considered.

1. Proposed Alternative (Preferred Alternative): *Phragmites* Reduction Primarily via Aerial Herbicide Spray (Proposed Alternative). Under this alternative, *Phragmites* control would be accomplished primarily through aerial application using an herbicide with the active ingredient glysophate (glysophate, N-phosphonomethylglycine in the form of its isopropylamine salt). Most areas requiring treatment will involve aerial spray. In some cases where aerial application may not be feasible or safe, then limited ground application of the herbicide (and possibly small-scale controlled burns) will be used.

2. No Action Alternative. This alternative would not involve any treatment of *Phragmites* stands by any methods. While it does not support meeting requirements delineated in Executive Order 13112, it will be used to compare the preferred alternative.

IV. Affected Environment and Environmental Consequences.

1. General.

a. Project Location. This project will occur on the US Army Transportation Center military reservation located at Fort Eustis, Virginia. Fort Eustis is located within the Chesapeake Bay watershed in southeastern Virginia. Specifically the installation is located on the Lower Peninsula adjacent to the City of Newport News and James City County. The installation's

shoreline borders the James River on the west and the Warwick River on the east. See Figure 1 for the map depicting the installation's geographical position. A wetlands area called Goose Island exists on the northwest portion of Fort Eustis (Figure 3). This area is properly owned by the Commonwealth of Virginia. Permission from Virginia must be obtained before spraying in this area.

b. Physical Description of Fort Eustis. Fort Eustis comprises 8,228 acres of land and is divided into two primary areas, the main post (cantonment area) and Mulberry Island. Main post comprises the majority of tenant activities, soldier billets, family housing and support facilities. This includes an elementary school, child development center, library, Post Exchange, Commissary, gymnasiums, theater, hospital and museum. Mulberry Island primarily includes training areas, weapons ranges, and Felker Army Airfield. The James River Reserve Fleet (JRRF) which is a Department of Transportation organization leases land and operates a pier facility on the James River from Mulberry Island. Mulberry Island comprises flat landscapes and wetlands varying from sea level to approximately ten feet in elevation. Natural resources existing at Fort Eustis include soils, surface waters, wetlands, forested land and wildlife. Much of this area includes forested riparian habitat, tidal wetlands, non-tidal wetlands (to include an estimated 50 acres of vernal pools and isolated freshwater wetlands) and upland habitat. Approximately, 1,947 acres of tidal wetlands and 221 acres of non-tidal wetlands exist. Most of the *Phragmites* stands are associated with tidal wetlands on Mulberry Island. Some *Phragmites* does occur on the periphery of the Main Post such as wetlands bordering Taylor Avenue across from Eustis Lake and along portions of the Warwick River. Additionally, some *Phragmites* exists in the 3d Port facility area. Forested areas comprise approximately 2,782 acres in the Mulberry Island area. Fort Eustis is comprised of two soil types: low river terrace and wetland soils (hydric), and low coastal plain upland soils. An estimated 75% are low terrace and wetlands soils. Fort Eustis is a non-industrial facility primarily associated with logistics and transportation training. It is a large-quantity generator of hazardous waste (EPA Identification Number VA8213720321) and subject to provisions of the Resource Conservation Recovery Act (RCRA).

c. Activities on Mulberry Island. Military personnel and Department of Defense civilians conduct various activities on Mulberry Island. This primarily includes training and weapons qualification as well as rotor wing aircraft operations at Felker Army Airfield. Additionally, a recreational golf course exists on Mulberry Island as does the JRRF as mentioned previously. Mulberry Islands does not contain soldier billets, family housing facilities or community support facilities. Other structures and facilities that exist include Range Control and an element of the US Army Aviation Technology Directorate. Range Control manages and controls operations taking place within training areas and weapons ranges. The area is accessed via several paved road networks predominately Mulberry Island Road, Harrison Road, Back River Road and Wilson Avenue.

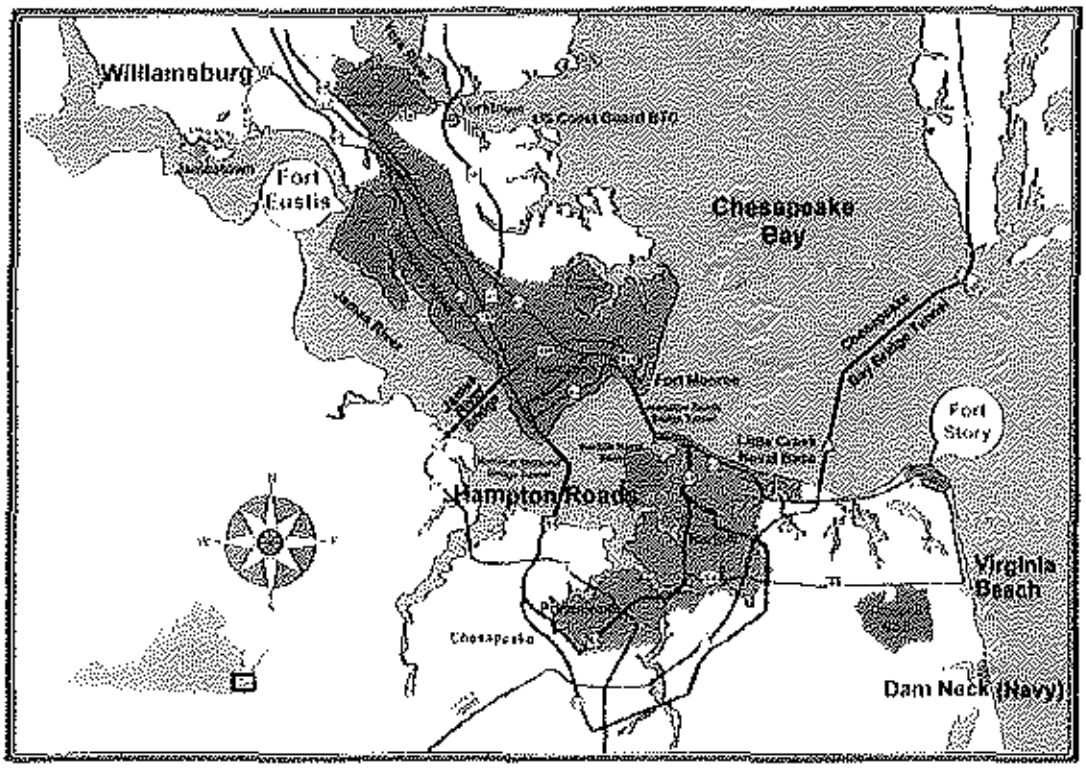


Figure 1: Fort Eustis Geographical Location in Virginia

d. Activities in the cantonment area and 3d Port. The cantonment area contains various installation tenant activities and support facilities. 3d Port is pier facility utilized by military vessels of the 7th Transportation Group. Most of the *Phragmites* stands exist south of this area with the exception of the wetlands west of Taylor Avenue and the 3d Port area (see Figures 3 & 4.

2. Specific Affected Environmental Areas and Effects on these Areas.

A. **Air Quality.** Fort Eustis is located within the Hampton Roads area which is a designated maintenance area for ozone. Precursors of ozone include oxides of nitrogen (NOx) and volatile organic compounds (VOCs). One UH-12 Raven style helicopter (or similar rotor wing aircraft) will used to perform the aerial spray under the proposed alternative. This aircraft comprises the equipment that emits NOx and VOCs from its exhaust. The aircraft is expected to operate approximately 20 hours at a horsepower rating of 175 (per annual treatment up to three years).

(1) Proposed Alternative. General Conformity under the Section 176 of the Clean Air Act was evaluated for this project. NOx and VOC emissions from operation of the aircraft needed to complete the project were calculated. This results in an estimated 0.37 tons of NOx emissions

and 0.71 tons of VOC emissions per year. Such emissions are well below the 100 ton threshold and thus not applicable to the General Conformity Rule. Additionally, impacts to air quality from herbicide release were also considered. Aerial spraying will be performed in accordance with the product labeling and aircraft safety regulations. Normally, this will involve spraying at a height of no more than 10 feet above the tallest target plants (unless safety measures dictate otherwise). Herbicide droplets will fall to the ground and not remain airborne for any appreciable amount of time. Furthermore, the herbicide used is not volatile. Subsequently, no significant impacts to air quality will exist. See Appendix A for a Record of Non-applicability and supporting calculations.

(2) No Action Alternative. No air emissions would result from this alternative since no treatment of *Phragmites* would occur.

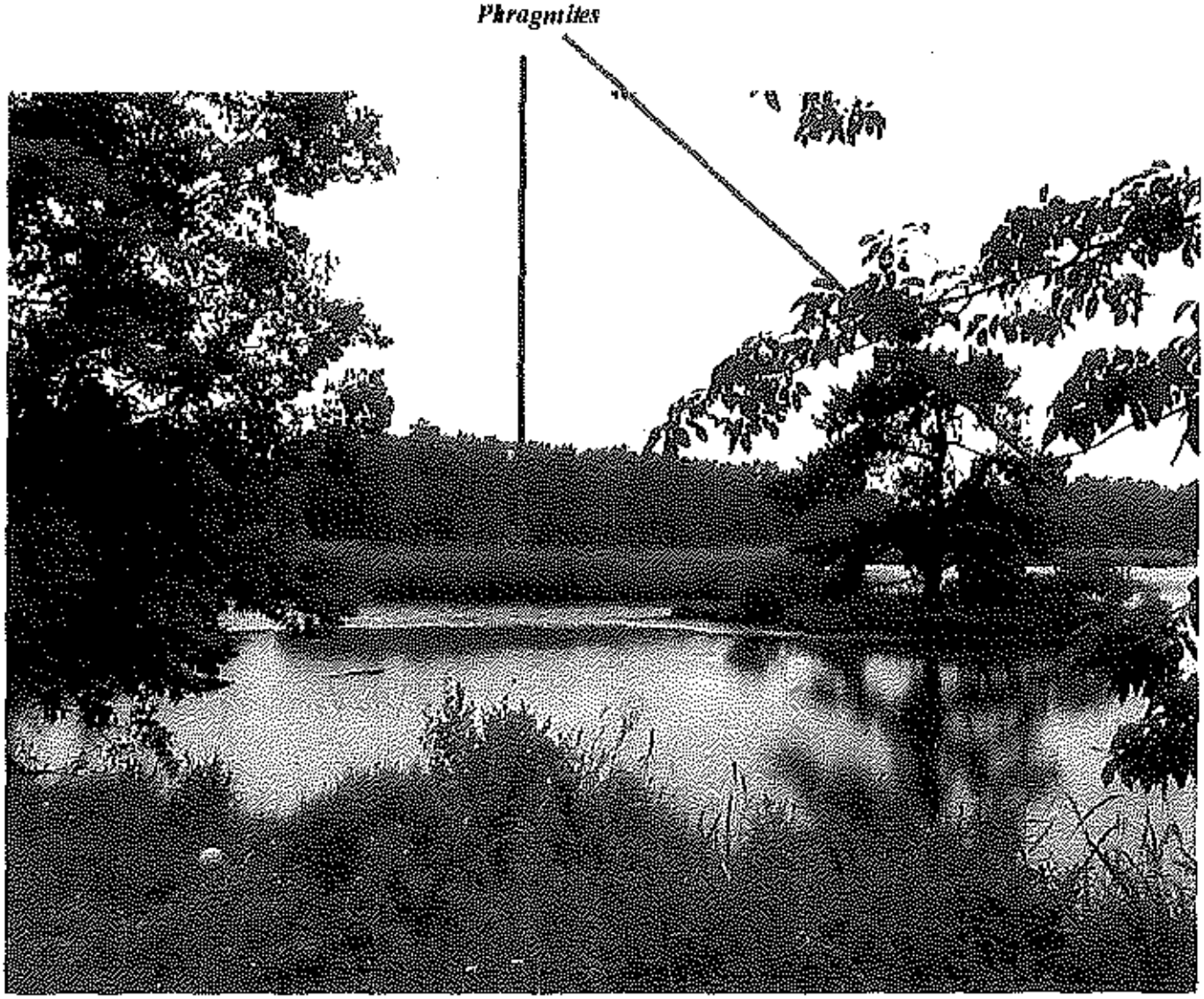
B. **Water Quality – Drinking Water and Groundwater Withdrawal Wells.** This section evaluates potential impacts to drinking water and groundwater withdrawal wells. The Newport News Water Works supplies drinking water to Fort Eustis. Water supplies for Fort Eustis and other local municipal customers originate in the Harwood Mills Reservoir and the Lee Hall Reservoir. No drinking water intake systems exist at Fort Eustis. Several groundwater withdrawal wells exist within Mulberry Island. These wells contain non-potable water used for various purposes. A map depicting the locations of these wells is provided at Figure 2.

(1) Proposed Alternative. Both reservoirs utilized by the Newport News Water Works are located outside of the Fort Eustis boundary where no spraying will occur. No spraying will occur near the groundwater well locations at Fort Eustis. Additionally, all installation activities will be notified as to when aerial spraying will take place. All appropriate measures will be taken to prevent herbicide drift as discussed previously.

(2) No Action Alternative. No impact to drinking water sources would result from this alternative since no aerial spray would occur.

C. **Water Quality – Surface Water.** Several surface water sources (along with associated tributaries) exist adjacent to targeted spray sites. These sources include Skiffes Creek, Eustis Lake, and the Warwick River. Skiffes Creek flows south-southwest past the 3d Port facility at Fort Eustis and into the confluence with the James River. Stands of *Phragmites* exist on the land and shoreline on the north shore opposite the 3d Port. This land area is adjacent to James City County. Eustis Lake is a 45-acre man-made recreational lake used for catch-and-release sport fishing and boating. It is also an Installation Restoration Program (IRP) site (IRP # FTEUST-36, see page 11-12 and Appendix B). The site is currently being investigated for PCB contamination in sediment and fish tissue. The site is addressed in accordance with the regulations promulgated under Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). *Phragmites* does not exist along the lake's shoreline but stands do exist just west of the lake

along Taylor Avenue that borders Eustis Lake (on the opposite side of Taylor Avenue). The Warwick River separates Fort Eustis from Newport News along the east boundary. It flows south-southeast towards the James River. A stand of *Phragmites* exists along the Warwick River. Figure 2 consists of a map indicating the location of these major surface waters. Additionally, there is Donnebroke Lake which is not an actual lake but rather a tidal marsh impoundment. It is located within Training Area 28 and contains stands of *Phragmites*.



Donnebroke Lake depicting stands of *Phragmites*

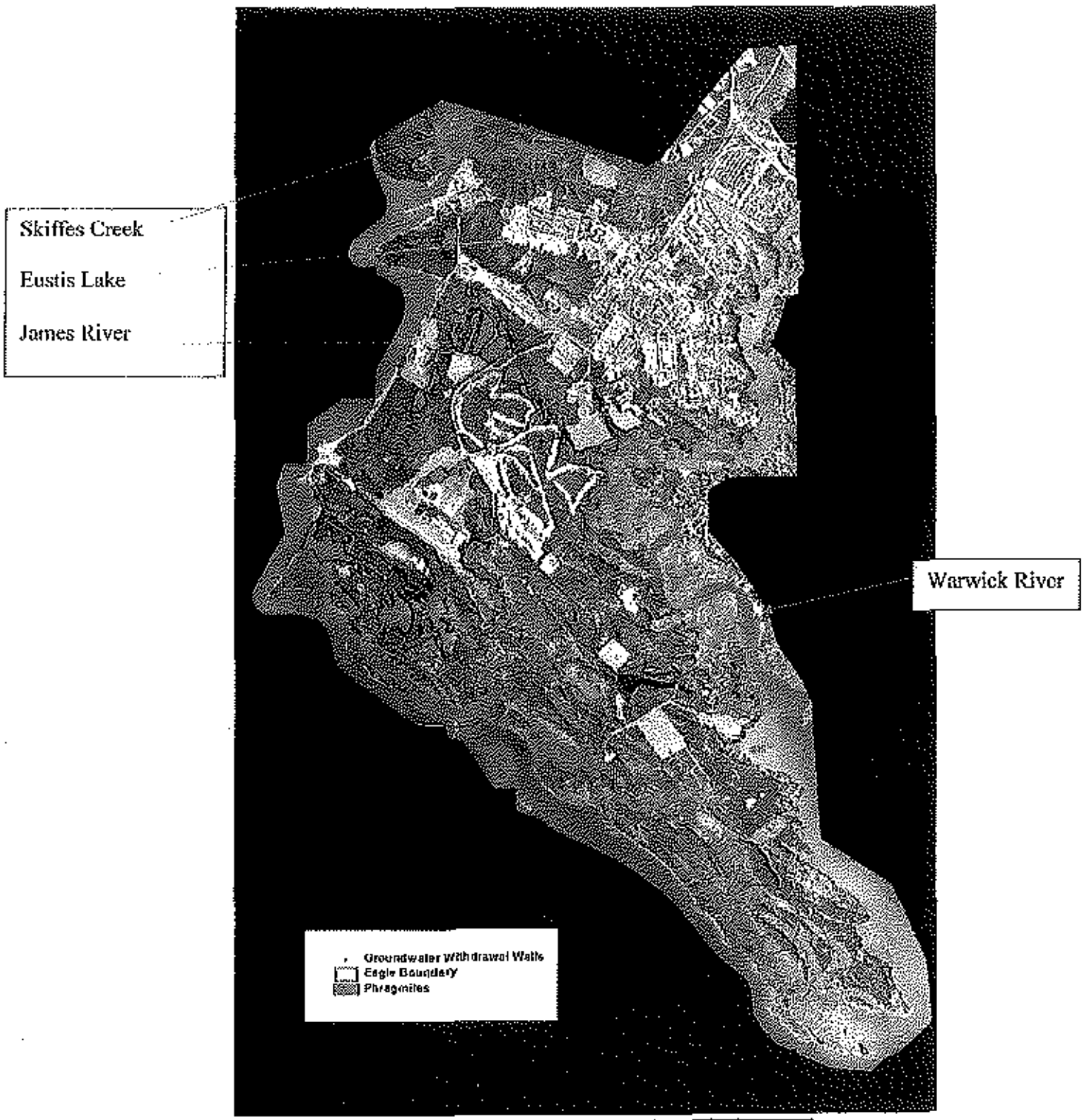


Figure 2
Major Surface Waters & Groundwater Withdrawal Wells in relation to *Phragmites* Sites

(1) Proposed Alternative. The intent of the project is to spray directly onto stands of *Phragmites* that exist along the shorelines of the surface waters discussed above. Drift of herbicide directly into surface waters will be greatly minimized by following the procedures discussed above. Additionally, the quantity of herbicide dispensed will be 4-6 pints per acre once per year for up to three years. Glysophate is not flammable and is water-soluble. Based on the small quantities dispersed during spraying (along with using the appropriate precautions to prevent drift) only very limited quantities are expected to enter surface waters. Subsequently, impacts to surface waters are not expected.

(2) No Action Alternative. No impact to surface waters would occur since this alternative would not involve spraying of the herbicide.

D. **Hazardous Materials, Waste Generation, and Human Health and Safety.** This section considers the human element in relation to handling/use of hazardous materials and waste generation during this project. Section IV, paragraph 1.c. discusses the activities occurring on Mulberry Island. Military personnel and Department of Defense civilians conduct various activities in this area which is primarily training and weapons qualification as well as rotor wing aircraft operations at Felker Army Airfield. The golf course is the only recreational facility located on Mulberry Island. The JRRF leases land to operate a pier from which to maintain its vessels moored in the James River. Mulberry Islands does not contain soldier billets or family housing facilities or community support facilities as mentioned previously. One exception would be the proximity of officer housing located between 3d Port and Goose Island. This area represents the informal border between the cantonment area and Mulberry Island. A large dense stand of Phragmites exists on the west side of Taylor Avenue. See Figure 3 for graphical depiction of this site. The other structures and facilities that exist include Range Control and a facility belonging to the US Army Aviation Technology Directorate. Additionally, natural resources personnel perform various conservation work throughout Mulberry Island. Subsequently, the majority of the personnel operating within Mulberry Island are military personnel, Department of Defense (DOD) civilians and contractors. These personnel would be operating from their respective facilities or buildings. Personnel conducting operations within training areas or firing ranges must obtain clearance from Range Control before entering such areas. Department of Transportation (DOT) civilians would ordinarily be operating from the JRRF pier or moored vessels in the James River, and visitors would primarily be associated with the golf course rather than the other areas of Mulberry Island.

Hazardous materials handled/used for this project primarily involves the herbicide Rodeo. Material Safety Data Sheets (MSDS) for this product are found at Appendix C. Additionally, other hazardous materials would include fuel and aircraft petroleum oils, lubricants and engine fluids associated with the aircraft to be used for spraying.

Personnel performing the application (both aerial and ground) must be certified applicators and thus authorized to treat areas with the herbicide in accordance with the product label. Such personnel will be familiar with the herbicide hazards and use of appropriate personal protective equipment.

(1) Proposed Alternative. The herbicide to be used contains glysophate as the main/active ingredient. This product was specifically designed for dispersal into the environment particularly aquatic environments. The product is non-flammable and non-volatile. Hazardous decomposition and hazardous polymerization do not occur. Subsequently, this product does not pose physical hazard risks to personnel operating within Mulberry Island during or after spraying operations. Skin and eye irritation generally does not occur in small incidental exposures. The product generally has a low toxicity for oral and dermal exposures associated with small exposures. The product is not known to be carcinogenic, teratogenic or mutagenic. Furthermore, glysophate is not listed by the US Environmental Protection Agency (EPA) as subject to Toxic Chemical Release Inventory (TRI) or Extremely Hazardous Substances (EHS) reporting under the Emergency Planning and Community Right To Know Act (EPCRA). Mixing of the product or transfer to spray tanks will occur either at the contractor's facility outside the installation boundary or at Felker Army Airfield. When such handling occurs at Felker Army Airfield, all appropriate spill prevention measures will be utilized in accordance with the US Army Transportation Center Integrated Contingency Plan (USATC ICP) and US Army Transportation Center & Fort Eustis (TCFE) Regulation 200-6 (Environmental Management). Such measures include (but not limited to) use of secondary containment, funnels, protection of drains, and avoidance of surface waters or storm drains. Additionally, the amount of herbicide to be used will be measured carefully to treat an estimated 500 acres of *Phragmites* stands in the amount of 4-6 pints per acre. Subsequently, all efforts will be made to use only what is needed. Any remaining herbicide will be retained by the contractor for future use. Subsequently, no waste is expected to be generated and therefore not increase the volume of waste generated by Fort Eustis or create new waste streams. As discussed previously, appropriate coordination and notifications will be made prior to spraying. Range Control will preclude entry into areas associated with treatment for up to seven days following treatment. Additional coordination will be made with the Directorate of Personnel & Community Services to include a public notice regarding golf course users. Furthermore, the Directorate of Public Works and the Office of Public Affairs will be involved in the overall notification procedures. Subsequently, human health and safety is not expected to be compromised based on prior coordination, the small quantities used to treat affected areas (4-6 pints per acre) and the low health and physical hazard risks associated with the product.

(2) No Action Alternative. No health or safety risks are associated with this alternative since no herbicide would be dispersed. No waste would be generated under this alternative since no hazardous materials would be used.

E. **Installation Restoration Program (IRP) Sites.** The IRP is the US Army's implementation of the Defense Environmental Restoration Program (DERP) that identifies, investigates and cleans up contamination at active Army installations. Fort Eustis is currently conducting environmental cleanup efforts under the guidelines established under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or established Commonwealth of Virginia environmental programs. Fort Eustis was included on the EPA's National Priorities List (NPL) with 27 sites being managed under the IRP. See IRP site map at Appendix B.

(1) Proposed Alternative. Areas containing *Phragmites* are primarily located in wetlands areas that do not contain IRP sites; however, some IRP sites may be adjacent to areas intended for herbicide treatment. In such cases, implementation of appropriate drift prevention techniques should preclude herbicide from affecting any IRP sites. Additionally, prior coordination will be made with the IRP Manager.

(2) No Action Alternative. No impacts to IRP sites would occur from this alternative since no spraying of herbicide would be involved.

F. **Wetlands.** An estimated 2,112 acres of tidal and non-tidal wetlands exist at Fort Eustis with the majority located on Mulberry Island. Approximately 1,947 acres are tidal wetlands. Most of the *Phragmites* stands are associated with tidal wetlands. *Spartina spp.* exist in tidal wetlands where *Phragmites* has not colonized the area and places where *Phragmites* presence is recent and has not yet precluded growth of native wetlands vegetation. A new tidal wetlands containing *Spartina spp.* is under construction to help stabilize Harrison Road along the James River. Harrison Road is threatened by erosion associated with storm surges and wave action. An estimated 50 acres of vernal pools also exist at Fort Eustis primarily on Mulberry Island.

(1) Proposed Alternative. The intent of spraying herbicide is to eliminate an invasive plant species that degrades the value, biodiversity and productivity of wetlands. This project will eliminate *Phragmites* from several wetlands and reduce its expansion into more wetlands areas. Some *Spartina spp* that exists at various locations targeted for herbicide treatment is expected to also be destroyed. Similar effects are expected when spraying the herbicide on *Phragmites* associated with non-tidal wetlands. However, in both tidal and non-tidal wetlands, the existing native seed bank reserve is expected to recover and become re-established. Subsequently, this represents an enhancement to wetlands versus an impact.

(2) No Action Alternative. By taking no action, *Phragmites* will continue to expand and degrade more wetlands. This could include the planned *Spartina* marsh being created to stabilize Harrison Road.

G. **Forested land and trees.** Mulberry Island comprises an estimated 2,782 acres of upland forested land. These areas are comprised of approximately two-thirds coniferous species (with loblolly pine as the dominant species). The remaining hardwoods include oak (red, white and black oak), yellow popular, sweet gum, red maple and American beech. Understory vegetation includes sassafras, aralia, honeysuckle, greenbrier, wax myrtle and red bay.

(1) Proposed Alternative. Most of the aerial spraying will avoid forested areas. Appropriate procedures will be implemented to reduce the risk of drift. Some trees may be associated with wetlands areas and may be adjacent to the targeted areas. However, few trees are expected to be exposed to the herbicide. Additionally, trees will be at a lower risk due to the lateness in the year (October) and will be entering dormancy.

(2) No Action Alternative. Damage to trees from herbicide exposure is not associated with this alternative.

H. **Wildlife.** Wildlife found on Mulberry Islands and portions of Main Post include 31 species of mammals, 191 species of birds, 18 species of amphibians and 15 species of reptiles. Some of these species are found in wetland areas to include those containing *Phragmites* to some extent. Most wildlife species are not thought to consume *Phragmites*. The American bald eagle (*Haliaeetus leucocephalus*) is the only federally threatened species that exists on Fort Eustis. Two active nests and one inactive nest exist on Mulberry Island. See Figure 3 for the exclusion zone boundary for the nest sites. No federally endangered species exist at Fort Eustis. Several species of concern exist near the Main Post, on Mulberry Island and associated wetlands. These include great egrets, yellow-crowned night herons and ospreys. An estimated 100-150 great egrets roost overnight along the north shoreline of Eustis Lake. Additionally, several species of migratory waterfowl exist at certain times of the year including Canada geese, mallards and wood ducks. Mammals include white-tailed deer, beaver, river otters, muskrats, rodent species and raccoons. Various species of reptiles and amphibians exist in or near wetland areas including anurans, salamanders, snakes, and turtles. Additionally, various macro-invertebrates exist in wetlands. This includes the federal species of concern the Tidewater interstitial amphipod. The amphipod was recorded along the seeps that enter the Warwick River on the north-northwest portion of the installation. The seeps are designated as Conservation Sites and referred to the North Seep Conservation Site and the South Seep Conservation Site in the Fort Eustis Integrated Natural Resources Management Plan (INRMP). Fish and shellfish are not expected to be impacted since no direct spraying of open surface waters will occur.

(1) Proposed Alternative. Potential impacts to wildlife represent the area needing more detailed consideration.

Bald Eagle. Three active nest sites and one inactive nest site exist at Fort Eustis. These sites are located in the more southern end of Mulberry Island. One quarter mile exclusion zones have been established around these sites. No persons are authorized to enter these zones in accordance with the Fort Eustis Endangered Species Management Plan for the Bald Eagle. No herbicide spraying or aircraft movement will occur within these pre-established exclusion zones. These areas will be incorporated into the flight plan in advance. Felker Army Airfield involves military aircraft training. Aircraft flights are routine but avoid the exclusion zones. The aerial spray aircraft is smaller and will operate a short period at Fort Eustis (less than one full work day per treatment). Furthermore, bald eagle breeding and nesting occurs primarily between November and July which is later than the spray time frame. Subsequently, aircraft noise associated with this project is not expected to adversely affect the bald eagles.

Great Egrets. Great egrets (*Casmerodius albus*) are a species of concern in Virginia. They forage in various tidal wetland areas at Fort Eustis and roost routinely in the trees along the north border of Eustis Lake. Roosting usually begins in the late afternoon through the night time hours. The birds have departed and are foraging elsewhere by dawn. Figures 3 and 4 indicate the location of the roosting area. One critical area needing herbicide treatment is located opposite this roost site along the west side of Taylor Avenue. Spraying will take place during normal daytime duty hours while employing appropriate drift preventive measures. Subsequently, there is low risk of roosting egrets being exposed to the herbicide. Generally, great egrets do not utilize the larger stands of *Phragmites*. Additionally, as discussed previously, aircraft will be flying at a height normally no more than ten feet above the highest target vegetation. Subsequently, great egrets and most other wading birds will avoid the targeted areas during spraying and are not expected to be exposed to the herbicide.

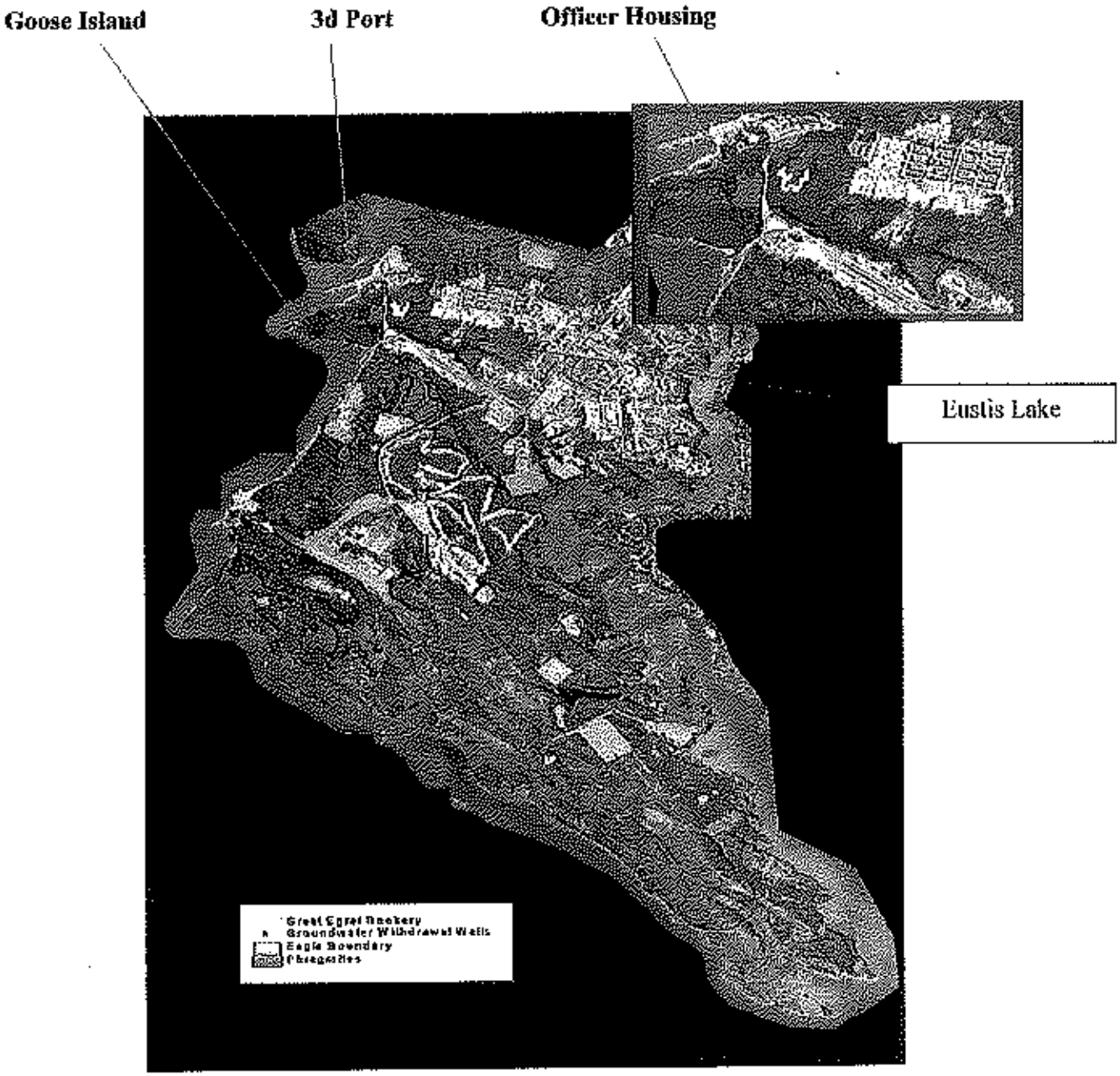


Figure 3:
Locations of Great Egret Roost Site, Officer Housing, Bald Eagle Nest Sites and *Phragmites* Sites

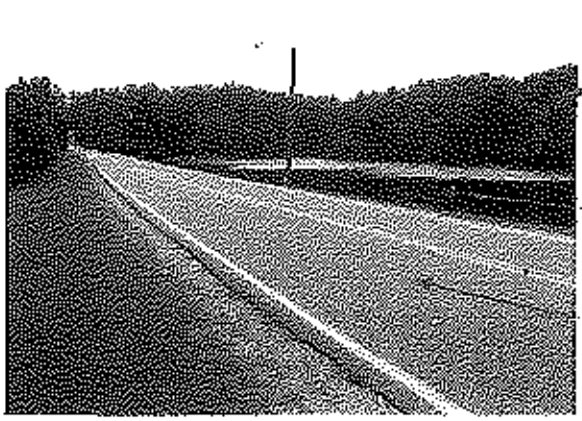


Figure 4: Photograph of Great Egret Roost and Proposed *Phragmites* Site

Migratory Waterfowl and Other Avian Species. Multiple species of migratory waterfowl and other avian species associated with wetlands are found throughout Fort Eustis at various times of the year. Such species include Canada geese (*Branta Canadensis*), mallards (*Anas platyrhynchos*), wood ducks (*Aix sponsa*), bufflehead (*Bucephala albeola*), great blue herons (*Ardea herodias*), yellow-crowned night-herons (*Nycticorax violaceus*), and ospreys (*Pandion haliaetus*). Many of these species forage in wetlands to include those areas where some *Phragmites* exists but has not yet completely replaced other wetland vegetation. In some

cases, migratory waterfowl found in these areas will be absent due to the time of year (October) when seasonal migrations are underway. Those species that do remain will likely avoid the area due to low-level aircraft flight. However, the elimination of *Phragmites* and subsequent return of native wetland vegetation will greatly enhance the habitat needed by these various avian species.

Reptiles and Amphibians. Few reptiles are found in the denser stands of *Phragmites* especially those areas characteristic of brackish conditions. Several water snakes of the genus *Nerodia* may exist in these areas; however, exposure to spray would be limited since these species are found in open water or on the ground. In such cases direct spraying of open water would be avoided based on prevention of drift and herbicide sprayed onto *Phragmites* would not likely penetrate to the ground. Additionally, reptiles would likely be seeking hibernacula during the spraying time frame. One exception regarding reptiles in brackish conditions would be the diamond-backed terrapin (*Malaclemys terrapin terrapin*) which is a federal special species of concern. However, this species is not expected to be associated with marshes congested with dense stands of *Phragmites*. While no endangered, threatened or special amphibian species of concern are known to exist at Fort Eustis, many species are in serious decline. Several species of anurans and salamanders are found in isolated freshwater wetlands and vernal pools at Fort Eustis. Tidal wetlands for which herbicide treatment is planned do not represent habitat for most amphibians due to brackish conditions, and those freshwater wetlands containing denser stands of *Phragmites* are not conducive to breeding. Most species of adult salamanders will be found in upland areas normally under cover with eggs and larva utilizing vernal pools or isolated wetlands that do not contain fish populations. No vernal pools are targeted for herbicide treatment. Anurans are normally not breeding in the October timeframe and will be seeking hibernacula.

Mammals. Mammalian species associated with wetlands or adjacent upland areas include whitetail deer (*Odocoileus virginianus*), river otters (*Lutra canadensis*), beavers (*Castor canadensis*), muskrats (*Ondatra zibethica*), raccoons (*Procyon lotor*), mink (*Mustela vison*) and marsh rice rats (*Oryzomys palustris*). Whitetail deer are found in upland areas and the fringes of freshwater wetlands. For the most part, deer will not be associated with most of the targeted tidal areas. Additionally, deer will likely vacate areas due to low-level aircraft flight. Beavers and rice rats will also be found in upland and freshwater wetlands. Mink and raccoons may be found in upland, freshwater wetlands and to some extent on the fringes of tidal wetlands. However, denser stands of *Phragmites* do not support prey used by these species and these areas not likely to be utilized extensively by these species. River otters also exist at Fort Eustis. This species is found in aquatic habitats to include riparian corridors. However, as with other mammalian species, it is not likely to be found in denser stands of *Phragmites*. With the exception of river otters (state-listed species of concern), no other mammalian species at Fort Eustis occupy any protective status. As with other wildlife species, the removal of *Phragmites* and return of native wetland vegetation will greatly enhance the habitat quality needed by mammals in the long term.

Interstitial Amphipod (*Stygobromus araeus*) and Conservation Sites. Two Conservation Sites have been designated at Fort Eustis. These sites include the North Seep Conservation Site and the South Seep Conservation Site. Both Sites were designed based on the identification of the interstitial amphipod which is a federal species of concern. Neither Site contains *Phragmites*. Both Sites are located on the northeast boundary of the installation and no aircraft movement or spraying will take place in these areas. Figure 5 indicates the location of these sites in relation to *Phragmites* stands. Subsequently, this project does not pose any impact to the interstitial amphipod.

(2) No Action Alternative. No direct impact to wildlife will occur from herbicide spraying since this alternative does not involve such. However, many species of wildlife would be adversely impacted by uncontrolled expansion of *Phragmites* in the long term. Habitats utilized by various wildlife species would be degraded or eliminated and thus removing vital resources needed by such species.

I. **Cultural resources.** Cultural resources include archeological sites, structures, historic districts and artifacts. A comprehensive inventory of the cultural resources was completed at Fort Eustis in 1989 (MAAR Associates, Inc). Two hundred and sixteen archeological sites were identified many of which are listed or eligible for listing on the National Registry of Historic Places. Additionally, the Mathew Jones House is a historic landmark listed on the National Registry of Historic Places.

(1) Proposed Alternative. No excavation or alteration of existing structures is associated with this project. The project is strictly associated with the removal of invasive plant species via aerial spray of herbicide (and to a lesser extent of augmentation by ground application of herbicide). Most archeological sites are not located with targeted areas. Additionally, the Mathew Jones House is not located in targeted areas. Subsequently, no impact to cultural resources is expected from this project.

(2) No Action Alternative. No impacts are associated from this alternative since this alternative does not involve application of herbicide.

J. **Aesthetics.** Aesthetics represent the image of the installation's scenery and landscape. Aesthetics apply to non-developed areas as well as development within the cantonement area. *Phragmites* represents visual anomalies by blocking out other native vegetation and wildlife associated with native ecosystems. Areas along Harrison Road (that parallels the James River) offer scenic areas for the installation community and visitors to enjoy. Bird watching, other wildlife watching, picnicking and sport fishing opportunities exist in this area. Figure 6 provides a photographic depiction of the effects of *Phragmites* on aesthetics.

Figure 5 – Conservation Sites

Figure 6: Phragmites in training area on Mulberry Island depicting Restriction of movement, compromising aesthetics, diminishing training opportunities and offering few resources to native wildlife species.

(1) Proposed Alternative. Expansion of *Phragmites* mars the aesthetics especially if it expands along the James River and the wetlands that exist on the opposite side of Harrison Road. Elimination of *Phragmites* and prevention of its expansion into this area would enhance the aesthetics.

(2) No Action Alternative. This alternative precludes controlling of *Phragmites* expansion. Subsequently, aesthetics will be impacted by this alternative.

K. **Noise.** An Installation Compatibility Use Zone Study (ICUZ) was prepared by the US Army Environmental Hygiene Agency for Fort Eustis in 1994. This study evaluated noise sources and implications on the installation and surrounding communities. Noise sources included aircraft noise from aircraft (primarily rotor-wing aircraft) at Felker Army Airfield, railroad noise from rail operations training and small arms range firing. No significant environmental noise issues were identified by the ICUZ. No new noise sources or increases in noise levels have occurred since the ICUZ was published.

(1) Proposed Alternative. This project involves the use of one UH-12 Raven rotor-wing that will operate for approximately 20 hours per year. This aircraft is considerably smaller and generates less noise than the military aircraft that routinely operate at Fort Eustis. Operation time will be during normal daytime duty hours. Subsequently, no noise issues are expected from this project.

(2) No Action Alternative. No noise issues would occur from this alternative since no aircraft would be operated.

L. **Protection of Children from Environmental Health and Safety Risks.** Executive Order 13045 requires that projects be evaluated to determine if such projects pose hazards to the health and safety of children. Fort Eustis functions in a manner similar to any given municipality. Military dependents reside on the installation. Additionally, an elementary school and child development center exist at Fort Eustis.

(1) Proposed Alternative. This project will occur primarily in the Mulberry Island area of Fort Eustis with the exception of the area west of Eustis Lake and the shoreline across from 3d Port). These areas do not represent locations were children would have activities and targeted areas for treatment are not adjacent to schools, day care centers, playgrounds or housing units. Subsequently, the health and safety of children will not be affected by this project.

(2) No Action Alternative. No hazards to children would be present from this alternative since no actual spraying would occur.

M. **Environmental Justice.** Executive Order 12898 requires that projects be evaluated to determine if such projects posed hazards to low-income or minority communities. This project is restricted to the Fort Eustis military reservation.

(1) Proposed Alternative. No aircraft flights or spraying is associated with communities outside the installation boundary. This project takes primarily in more remote areas of the Fort Eustis military reservation. No visual or auditory impairments or chemical contamination will occur to affect local communities. Subsequently, this project does not pose disproportionately high adverse human health and environmental effects on minority or low-income populations residing in the surrounding communities.

(2) No Action Alternative. No hazards or impacts on low-income or minority communities would occur from this alternative since no actual spraying would occur.

N. **Coastal Zone Management.** A Coastal Zone Consistency Determination was prepared and included in Appendix D. The Proposed Alternative is considered consistent with Virginia's Coastal Resources Management Program.

V. Cumulative Impacts. This project is a short-term action specifically intended to improve the natural environment. There are no future projects specifically intended to eliminate or encroach upon tidal or non-tidal wetlands. One potential exception to consider is the expansion of training areas and firing ranges. An environmental assessment was recently completed for this project. No construction would occur in wetlands as a result of this project. No large scale spraying of herbicide is planned in the near term. Pesticides are applied on an as-needed basis following surveys for arthropod vectors of diseases (such as for ticks that carry Lyme disease and mosquitoes that carry West Nile Virus). This occurs in the cantonment area and to some extent in training areas on Mulberry Island. However, such pesticide use must be accomplished in accordance with the Fort Eustis Integrated Pest Management Plan. As discussed previously, treatment of wetlands containing stands of *Phragmites* will occur once per year for up to three years at a rate of 4-6 pints per acre. No extensive treatment of *Phragmites* with herbicide has occurred at Fort Eustis previously. Subsequently, the quantity and frequency of dispersal will be limited. No cumulative environmental impacts are anticipated.

VI. Conclusions. The proposed project of controlling *Phragmites* primarily via aerial spraying was analyzed by considering all environmental resource areas that could be affected and by comparing to a no action alternative. While other alternatives theoretically exist, these would not be feasible based on significant resource constraints in terms of time, manpower and funding. Impacts to the natural environment as well as human health and safety were determined to be minimal while the quality of existing wetlands would be greatly enhanced in the long term following control of *Phragmites*. Additionally, the new *Spartina* marsh on Harrison Road would not be threatened. Based on the results of this EA, implementation of the Proposed Alternative would have no significant impact on the natural or human environment. Subsequently, a Finding of No Significant Impact (FONSI) has been prepared. This precludes the need for an Environmental Impact Statement. Implementation of mitigation measures noted below is recommended.

VII. Mitigation Measures. Mitigation measures will include the following:

a. The installation natural resources managers will meet with the designated contractor in advance to plan the aerial spray. This EA will be reviewed and key locations such as the bald eagle nest sites and great egret roost sites will be mapped and avoided.

b. The flight plan will be reviewed and pre-spray flights will be conducted.

c. Aerial spray will be conducted such that drift will be minimal. This will occur in accordance with the manufacturer's recommendations.

d. Coordination with Range Control, Directorate of Personnel & Community Activities and the Office of Public Affairs will ensure appropriate notifications so preclude access to areas being sprayed.

APPENDIX A

Record of Non-Applicability (RONA)

General Conformity – Record of Non-Applicability

Date Prepared: 04 June 2004

Project Name: Phragmites Control
Fort Eustis, Virginia

Project Point of Contact: Tim Christensen
DPW-ENRD

Project Description: Project entails aerial spraying by helicopter of Phragmites in specified areas of Fort Eustis.

Begin Date: Not specifies

End Date: 5 days after initiation of project

General Conformity under the Clean Air Act, Section 176 has been evaluated for the project described above according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this project because:

Total direct and indirect emissions from this project have been estimated at 0.71 tons VOCs and 0.37 tons NOx per year, which are below the conformity threshold value established at 40 CFR 93.153 (b) of 100 tons VOCs and 100 tons NOx.

Supported documentation and emission estimates are

(X) Attached

( ) Appear in the NEPA Documentation

( ) Other _____

Daniel S. Musel
Environmental Engineer

Record Of Non-Applicability (RONA) Calculations

Date Prepared: 4-Jun-04
Prepared by: Dan Musel

Project Name: Phragmites Control
Fort Eustis, Virginia

Estimated Helicopter Emissions

Based on data collected by the Air Force Institute for Environmental Safety and Occupational Health Risk Analysis at Brooks AFB.
Web page: http://sg-www.satx.disa.mil/fera/rse/JP-8data.htm

Emission Factors

Pollutant	Emission Factor (lbs/1,000 lbs fuel burned)					Emission Factor (lbs/1,000 gallons) = (Max EF x weight gallon JP-8)
	T53		700 GE		Max Emission Factor	
	Flight Idle	Normal Rated	Flight Idle	Normal Rated		
NOx	2.53	6.43	7.56	8.18	8.18	57.16
VOC	15.75	0.66	0.37	0.49	15.75	110.06

weight of JP-8 = specific gravity of JP-8 (0.84) X weight of water (8.319 lbs/gallon) = 6.99 lbs/gallon

Operating hours	20	hours
Fuel flow rate	645	lbs/hr -- based on T53-L-13 Aircraft Engine
Total fuel used	12,900	gallons

Emissions (lbs/year) = Emission Factor (lbs/1,000 gallons) x Fuel Usage (gallons)

Emissions	=	Emission Factor	X	Fuel Usage		=	lbs	tons
NOx	=	57.16 lbs / 1,000 gallons	X	12,900	gallons	=	737	0.369
VOC	=	110.06 lbs / 1,000 gallons	X	12,900	gallons	=	1,420	0.710

Estimated Gasoline Vehicle Emissions

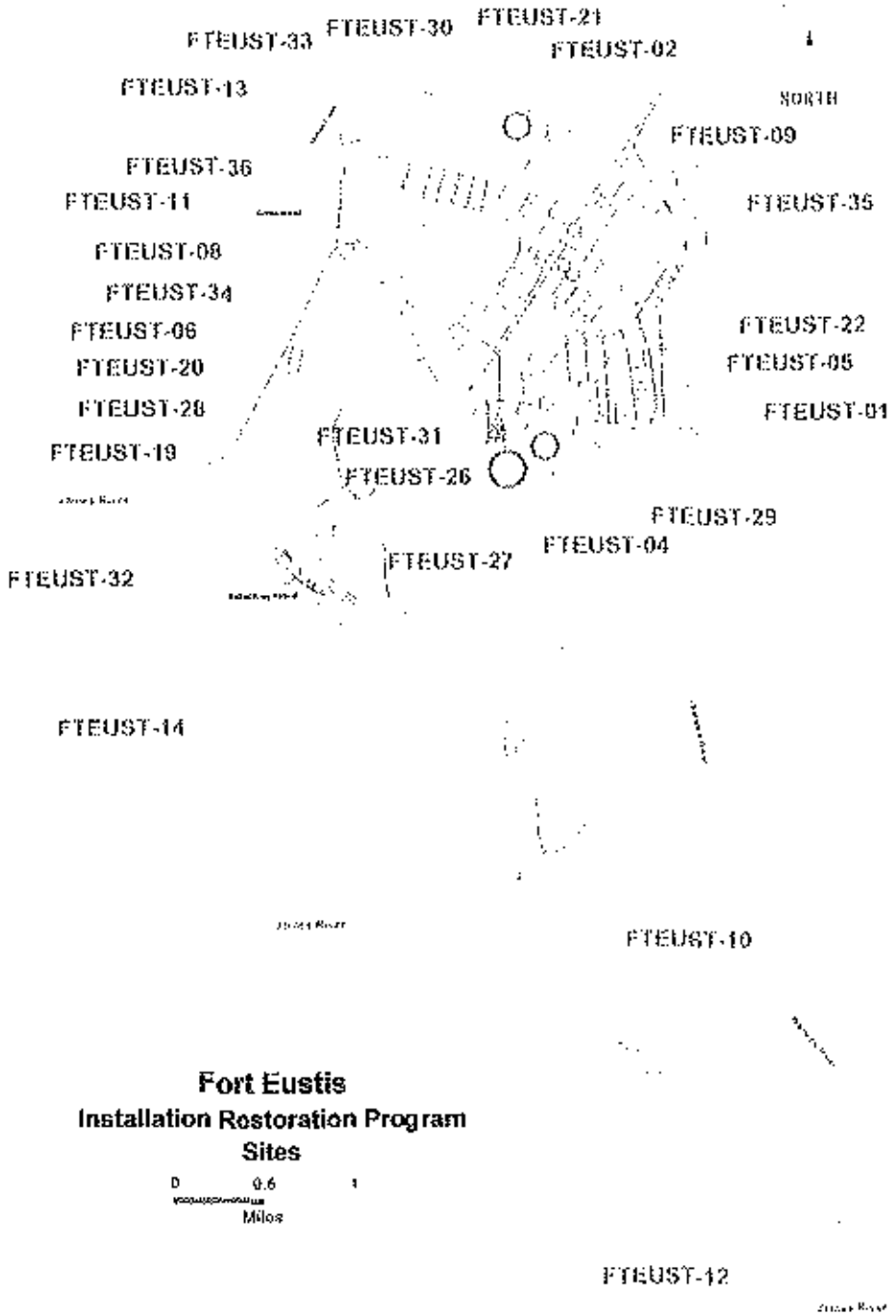
Conversion Factor: 1 gram = 0.0022 lbs

	Number	Fuel	Hours/Day	Days	Total Hours	Potential Miles Driven[3]	Factors[2] VOCs (g/mile)	Factors[2] NOx (g/mile)
Pick-up Trucks	2	Gasoline	1	20	40	1,400	1.428	3.99
						Total emissions (grams)	1,999	5,582
						Total emissions (pounds)	4	12
						Total emissions (tons)	0.002	0.006

Total NOx Emissions (tons)	0.37
Total VOC Emissions (tons)	0.71

APPENDIX B

Installation Restoration Program Site Map


FTEUST-33
FTEUST-30
FTEUST-21
FTEUST-02
FTEUST-13
NORTH
FTEUST-09
FTEUST-36
FTEUST-11
FTEUST-35
FTEUST-08
FTEUST-34
FTEUST-06
FTEUST-22
FTEUST-20
FTEUST-05
FTEUST-28
FTEUST-01
FTEUST-31
FTEUST-19
FTEUST-26
FTEUST-29
FTEUST-04
FTEUST-27
FTEUST-32
FTEUST-14
FTEUST-10
FTEUST-12
Fort Eustis
Installation Restoration Program
Sites
0
0.6
Miles

APPENDIX C

Material Safety Data Sheets

MONSANTO MATERIAL SAFETY DATA

MONSANTO PRODUCT NAME
RODEO®
Herbicide

MONSANTO COMPANY
800 N. LINDBERGH
ST. LOUIS, MO 63167
EMERGENCY PH. NO. (CALL COLLECT) (314) 694-4000
Date Prepared: March, 1993

PRODUCT IDENTIFICATION

EPA Registration Number:	524-343
Synonyms:	None
Chemical Name:	Not Applicable, Formulated Product
Active Ingredient:	Glyphosate, N-phosphonomethylglycine, in the form of its isopropylamine salt 53.5%
Inert Ingredients:	..... 46.5%
	100.0%

*Contains 648 grams per liter or 5.4 pounds per U.S. gallon of the active ingredient, glyphosate in the form of its isopropylamine salt. Equivalent to 480 grams per liter or 4 pounds per U.S. gallon of the acid, glyphosate.

CAS Reg. No.:	Not Applicable, Formulated Product
CAS Reg. No. Active Ingredient:	1071-83-6
DOT Proper Shipping Name:	Not Applicable
DOT Hazard Class/I.D. No.:	Not Applicable
DOT Label:	Not Applicable
Reportable Quantity (RQ) Under Clean Water Act:	Not Applicable
U.S. Surface Freight Classification:	Weed killing compound, N.O.I.B.N.

SARA Hazard Notification

Hazardous Categories Under Criteria of SARA Title III Rules (40 CFR Part 370): Not applicable

Section 313 Toxic Chemical(s): Not Applicable

Hazardous Chemical(s) Under OSHA Hazard Communication Standard: Not Applicable

WARNING STATEMENTS

Keep out of reach of children.
CAUTION!
MAY BE HARMFUL IF INHALED

PRECAUTIONARY MEASURES

- Remove contaminated clothing and wash clothing before reuse.
- Wash thoroughly with soap and water after handling.
- Do not contaminate water when disposing of equipment wash waters.
- Treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants. This oxygen loss can cause fish suffocation.

EMERGENCY AND FIRST AID PROCEDURES

First Aid:

If Inhaled: Remove individual to fresh air. Seek medical attention if breathing difficulty develops.

OCCUPATIONAL CONTROL PROCEDURES

Eye Protection: RODEO® herbicide does not present significant eye irritation or eye toxicity requiring special protection. Avoid eye contact as good industrial practice.

Skin Protection: RODEO® herbicide does not present significant skin concern requiring special protection.

Respiratory Protection: For Handling of the Undiluted Product: Undiluted RODEO® herbicide is not likely to represent an airborne exposure concern during normal handling. In the event of an accidental discharge of the material during manufacture or handling which produces a heavy vapor or mist, workers should put on respiratory protection equipment. Consult respirator manufacturer to determine appropriate type of equipment. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer.

For Application of Product Diluted in accordance with label instructions: Respirators are not required for applications of use - dilutions of RODEO® herbicide.

Ventilation: No special precautions are recommended.

Airborne Exposure Limits:

Product: **RODEO® herbicide - 100% by weight:**

OSHA PEL/TWA: None established ACGIH TLV/TWA/STEL: None established

FIRE PROTECTION INFORMATION

Flash Point: This material is not combustible as tested by the Tag Cup Test.

Extinguishing Media: Use appropriate extinguishing media for exposure fire.

Special Firefighting Procedures: Firefighters or others who may be exposed to mists or products of combustion should wear a self-contained breathing apparatus and full protective clothing. Equipment should be thoroughly cleaned after use.

Unusual Fire and Explosion Hazards: None

REACTIVITY DATA

Stability: Stable for at least 5 years under normal conditions of warehouse storage. Heated facilities are not required.

Incompatibility: Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

Hazardous Decomposition Products: None known.

Hazardous Polymerization: Does not occur. This product can react with caustic (basic) materials to liberate heat. This is not a polymerization but rather a chemical neutralization in an acid-base reaction.

HEALTH EFFECTS SUMMARY

The following information summarizes human experience and results of scientific investigations reviewed by health professionals for hazard evaluation of RODEO® herbicide and development of Precautionary Statements and Occupational Control Procedures recommended in this document.

EFFECTS OF EXPOSURE

Inhalation and skin contact are expected to be the primary routes of occupational exposure to RODEO® herbicide. Occupational exposure to this material has not been reported to cause significant adverse health effects. On the basis of available information, exposure to RODEO® herbicide is not expected to produce significant adverse human effects when recommended safety precautions are followed.

TOXICOLOGICAL DATA

Data from laboratory studies conducted by Monsanto with RODEO® herbicide are summarized below.

Oral -	Practically Non-toxic, (Rat LD_{50} - >5,000 mg/kg)
Dermal -	Practically Non-toxic, (Rabbit LD_{50} - >5000 mg/kg)
Inhalation -	No more than Slightly Toxic (Rat 4-hr LC_{50} - >1.3 mg/L, the highest atmospheric concentration achievable in this study.)
Eye Irritation -	Non Irritating (Rabbit, 0.0/110.0)
Skin Irritation -	Practically Nonirritating (Rabbit, 24-hr exposure, 0.1/8.0)

In repeat dosing studies (6-months), dogs fed RODEO® herbicide exhibited slight body weight changes. Following repeated skin exposure (3-weeks) to RODEO® herbicide, skin irritation was the only effect in rabbits. No skin allergy was observed in guinea pigs following repeated skin exposure. Additional toxicity information is available on glyphosate, the active herbicidal ingredient of RODEO® herbicide. Following repeated exposures (90-days) to glyphosate in their feed, decreased weight gains were noted at the highest test level in mice, while no treatment-related effects occurred in rats. Following repeated skin exposure (3 weeks) to glyphosate, slight skin irritation was the primary effect observed in rabbits. No skin allergy was observed in guinea pigs following repeated skin exposure. There was no evidence of effects on the nervous system, including delayed effects in chickens (repeat oral doses) or cholinesterase inhibition in rats (single oral doses). Reduced body weight gain and effects on liver tissues were observed with long-term (2-year) feeding of glyphosate to mice at high-dose levels. Reduced body weight gain and eye changes were observed at the high-dose level in one long-term (2 year) feeding study with rats, while no treatment-related effects occurred in a second study. No adverse effects were observed in feeding studies with dogs. Glyphosate did not produce tumors in any of these studies. **Based on the results from the chronic studies, EPA has classified glyphosate in category E (evidence of non-carcinogenicity for humans).** No birth defects were noted in rats and rabbits given glyphosate orally during pregnancy, even at amounts which produced adverse effects on the mothers. Glyphosate was fed continuously to rats at very high dose levels for 2 successive generations. Toxicity was reported in offspring from the high dose, a level which also produced adverse effects on the mothers. In a 3 generation study conducted at lower dose levels, no effects were seen on the ability of male or female rats to reproduce. Glyphosate has produced no genetic changes in a variety of standard tests using animals and animal or bacterial cells.

PHYSICAL DATA

Appearance:	Colorless solution
Odor:	Essentially odorless
pH:	4.6 - 4.8
Specific Gravity:	1.22 - 1.25 (water = 1)

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

SPILL, LEAK & DISPOSAL INFORMATION

SPILL/LEAK:

Observe all protection and safety precautions when cleaning up spills -- see Occupational Control Procedures.

Liquid spills on floor or other impervious surfaces should be contained or diked, and should be absorbed with attapulgite, bentonite or other absorbent clays. Collect contaminated absorbent, place in plastic-lined metal drum and dispose of in accordance with instructions provided under DISPOSAL. Thoroughly scrub floor or other impervious surfaces with a strong industrial type detergent solution and rinse with water.

Liquid spills that soak into the ground should be dug up, placed in plastic-lined metal drums and disposed of in accordance with instructions provided under DISPOSAL.

Leaking containers should be separated from non-leakers and either the container or its contents transferred to a drum or other non-leaking container and disposed of in accordance with instructions provided under DISPOSAL. Any recovered spilled liquid should be similarly collected and disposed of.

Do not contaminate water, foodstuffs, seed or feed by storage or disposal.

DISPOSAL:

Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, State and local procedures.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

Do not reuse container. Return emptied container per the Monsanto container return program. If not returned, triple rinse container, then puncture and dispose of in a sanitary landfill or by incineration or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

STORAGE:

STORE ABOVE 10°F (-12°C) TO KEEP FROM CRYSTALLIZING.

Crystals will settle to the bottom. If allowed to crystallize, place in a warm room at 68°F (20°C) for several days to redissolve and mix well before using.

ENVIRONMENTAL EFFECTS

ENVIRONMENTAL TOXICITY INFORMATION:

96-hr LC_{50} Bluegill:	> 1,000 mg/L, Practically Nontoxic
96-hr LC_{50} Trout:	> 1,000 mg/L, Practically Nontoxic
96-hr TL_{50} Carp:	> 10,000 ppm, Practically Nontoxic
48-hr EC_{50} *Daphnia*:	930 mg/L, Practically Nontoxic
Oral LD_{50} Goat:	5,700 mg/Kg, Practically Nontoxic

Brahman-cross heifers were given RODEO® herbicide, by gavage, at daily dosages of 0, 540, 830, 1290 and 2000 mg/Kg for 7 consecutive days. Clinical signs of toxicity, including loss of appetite, diarrhea and death (1290 and 2000 mg/Kg) were observed at 830 mg/Kg or above. The no-effect level was considered to be 540 mg/Kg/day.

For environmental toxicity information of Glyphosate, the active herbicidal ingredient of RODEO® herbicide, refer to the Glyphosate Material Safety Data Sheet.

DATE: March, 1993 SUPERSEDES: February, 1992 MSDS NO.: S00010153

FOR ADDITIONAL NON-EMERGENCY INFORMATION, CALL: 1-800-332-3111

Specimen Label

Dow AgroSciences

Rodeo®

Herbicide

For aquatic weed and brush control. For control of annual and perennial weeds and woody plants in and around aquatic and other noncrop sites; also for use in wildlife habitat areas, for perennial grass release, and grass growth suppression.

Avoid contact of herbicide with foliage, green stems, exposed non-woody roots or fruit of crops, desirable plants and trees, because severe injury or destruction may result.

Active Ingredient(s):	
glyphosate[1]: N-(phosphonomethyl)glycine, isopropylamine salt	53.8%
Inert Ingredients	46.2%
Total Ingredients	100.0%

[1]Contains 5.4 pounds per gallon glyphosate, isopropylamine salt (4 pounds per gallon glyphosate acid).

EPA Reg. No. 62719-324

Keep Out of Reach of Children

CAUTION PRECAUCION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

Precautionary Statements

Hazards to Humans and Domestic Animals

Harmful if inhaled

Avoid breathing spray mist. Remove contaminated clothing and wash before reuse. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks.

Follow manufacturer's instructions for cleaning/maintaining PPE (Personal Protective Equipment). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

First Aid

If inhaled: Remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

Environmental Hazards

Do not contaminate water when disposing of equipment washwaters. Treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants. This oxygen loss can cause fish suffocation.

In case of leak or spill, soak up and remove to a landfill.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

Do not mix, store or apply this product or spray solutions of this product in galvanized steel or unlined steel (except stainless steel) containers or spray tanks. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

Notice: Read the entire label. Use only according to label directions. **Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" elsewhere on this label.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994. If you wish to obtain additional product information, visit our web site at www.dowagro.com.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
Read all Directions for Use carefully before applying.

This is an end-use product. Dow AgroSciences does not intend and has not registered it for reformulation. See individual container label for repackaging limitations.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical resistant gloves made of any waterproof material
- Shoes plus socks

Storage and Disposal

Do not contaminate water, food, feed or seed by storage or disposal.
Storage: Store above 10°F (-12°C) to keep product from crystallizing. Crystals will settle to the bottom. If allowed to crystallize, place in a warm room 68°F (20°C) for several days to redissolve and roll or shake container or recirculate in mini-bulk containers to mix well before using.
Pesticide Disposal: Wastes resulting from use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures.
Container Disposal: Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Do not reuse this container. Triple rinse (or equivalent). Then puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

General Information
(How this product works)

This product herbicide is a water-soluble liquid which mixes readily with water and nonionic surfactant to be applied as a foliar spray for the control or destruction of many herbaceous and woody plants. Rodeo is intended for control of annual and perennial weeds and woody plants in and around aquatic and other noncrop sites; also for use in wildlife habitat areas, for perennial grass release, and grass growth suppression.

The active ingredient in Rodeo moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days, 7 days or more on most perennial weeds, and 30 days or more on most woody plants. Extremely cool or cloudy weather following treatment may slow the activity of this product and delay visual effects of control. Visible effects include gradual wilting and yellowing of the plant which advances to complete browning of above-ground growth and deterioration of underground plant parts.

Unless otherwise directed on this label, delay application until vegetation has emerged and reached the stages described for control of such vegetation under the "Weeds Controlled" section of this label.

Unemerged plants arising from unattached underground rhizomes or root stocks of perennials or brush will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds or brush is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of Rodeo and surfactant within the recommended range when vegetation is heavy or dense.

Do not treat weeds, brush or trees under poor growing conditions such as drought stress, disease or insect damage, as reduced control may result. Reduced control of target vegetation may also occur if foliage is heavily covered with dust at the time of treatment.

Reduced control may result when applications are made to woody plants or weeds following site disturbance or plant top growth removal from grazing, mowing, logging or mechanical brush control. For best results, delay treatment of such areas until resprouting and foliar growth has restored the target vegetation to the recommended stage of growth for optimum herbicidal exposure and control.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application may wash the product off the foliage and a repeat treatment may be required.

Rodeo does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. When not in use, keep container closed to prevent spills and contamination.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product or other materials that are not expressly recommended in this label. Mixing this product with herbicides or other materials not recommended in this label may result in reduced performance.

ATTENTION: Avoid drift. Extreme care must be used when applying this product to prevent injury to desirable plants and crops.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of plant or crop injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. **Avoid applying at excessive speed or pressure.**

Mixing and Application Instructions

Clean sprayer and parts immediately after using this product by thoroughly flushing with water and dispose of rinsate according to labeled use or disposal instructions.

Apply these spray solutions in properly maintained and calibrated equipment capable of delivering desired volumes. Hand-gun applications should be properly directed to avoid spraying desirable plants. Note: reduced results may occur if water containing soil is used, such as water from ponds and unlined ditches.

Mixing

Rodeo mixes readily with water. Mix spray solutions of this product as follows:

1. Fill the mixing or spray tank with the required amount of water while adding the required amount of this product (see "Directions for Use" and "Weeds Controlled" sections of this label).
2. Near the end of the filling process, add the required surfactant and mix well. Remove hose from tank immediately after filling to avoid siphoning back into the water source.

Note: If tank mixing with Garlon® 3A herbicide, ensure that Garlon 3A is well mixed with at least 75 percent of the total spray volume before adding Rodeo to the spray tank to avoid incompatibility.

During mixing and application, foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, place the filling hose below the surface of the spray solution (only during filling), terminate by-pass and return lines at the bottom of the tank, and, if needed, use an approved anti-foam or defoaming agent.

Keep by-pass line on or near bottom of tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50 mesh. Carefully select correct nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

IMPORTANT: When using this product, unless otherwise specified, mix 2 or more quarts of a nonionic surfactant per 100 gallons of spray solution. Use a nonionic surfactant labeled for use with herbicides. The surfactant must contain 50 percent or more active ingredient.

Always read and follow the manufacturer's surfactant label recommendations for best results.

These surfactants should not be used in excess of 1 quart per acre when making broadcast applications.

Carefully observe all cautionary statements and other information appearing in the surfactant label.

Colorants or marking dyes approved for use with herbicides may be added to spray mixtures of this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's label recommendations.

Application Equipment and Techniques

ATTENTION: AVOID DRIFT. EXTREME CARE MUST BE EXERCISED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift, or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to crops, plants, or other areas on which the treatment was not intended. The likelihood of plant or crop injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

Note: Use of this product in a manner not consistent with this label may result in injury to persons, animals, or crops, or other unintended consequences. When not in use, keep container closed to prevent spills and contamination.

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees. Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the following **Aerial Drift Reduction Advisory Information:**

Importance of Droplet Size: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversion section of this label).

Controlling Droplet Size: Volume-Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows product larger droplets.

Pressure-Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

Number of nozzles-Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation-Orienting nozzles so that the spray is released backwards, parallel to the airstream will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

Nozzle Type-Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types.

Boom Length-For some use patterns, reducing the effective boom length to less than ¾ of the wingspan or rotor length may further reduce drift without reducing swath width.

Application-Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment: When applications are made with a cross-wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind: Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. Note: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

Temperature and Humidity: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions: Applications should not occur during a temperature inversion, because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Aerial Equipment

For aerial application of this product in California, refer to Federal supplemental label for Rodeo herbicide entitled "For Aerial Application in California Only". In California, aerial application may be made in aquatic sites and noncrop areas, including aquatic sites present in noncrop areas that are part of the intended treatment.

For control of weed or brush species listed in this label using aerial application equipment: For aerial broadcast application, unless otherwise specified, apply the rates of Rodeo and surfactant recommended for broadcast application in a spray volume of 3 to 20 gallons of water per acre. See the "Weeds Controlled" section of this label for labeled annual and herbaceous weeds and woody plants and broadcast rate recommendations. Aerial applications of this product may only be made as specifically recommended in this label.

AVOID DRIFT. Do not apply during inversion conditions, when winds are gusty or under any other condition which will allow drift. Drift may cause damage to any vegetation contacted to which treatment is not intended. To prevent injury to adjacent desirable vegetation, appropriate buffer zones must be maintained.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing in the additive label. The use of a drift control agent for conifer and herbaceous release applications may result in conifer injury and is not recommended.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **Prolonged exposure of this product to uncoated steel surfaces may result in corrosion and possible failure of the part. Landing gear are most susceptible.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion.

Ground Broadcast Equipment

For control of weed or brush species listed in this label using conventional boom equipment: For ground broadcast application, unless otherwise specified, apply the rates of Rodeo and surfactant recommended for broadcast application in a spray volume of 3 to 30 gallons of water per acre. See the "Weeds Controlled" section of this label for labeled annual and herbaceous weeds and woody plants and broadcast rate recommendations. As density of vegetation increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select correct nozzle to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

Hand-Held and High-Volume Equipment
(Use Coarse Sprays Only)

For control of weeds listed in this label using knapsack sprayers or high-volume spraying equipment utilizing handguns or other suitable nozzle arrangements:

High volume sprays: Prepare a **3/4 to 2 percent solution** of this product in water, add a nonionic surfactant and apply to foliage of vegetation to be controlled. For specific rates of application and instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section in this label.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of runoff.

Low volume directed sprays: Rodeo may be used as a **5 to 8 percent solution** in low-volume directed sprays for spot treatment of trees and brush. This treatment method is most effective in areas where there is a low density of undesirable trees or brush. If a straight stream nozzle is used, start the application at the top of the targeted vegetation and spray from top to bottom in a lateral zig-zag motion. Ensure that at least 50 percent of the leaves are contacted by the spray solution. For flat fan and cone nozzles and with hand-directed mist blowers, mist the application over the foliage of the targeted vegetation. Small, open-branched trees need only be treated from one side. If the foliage is thick or there are multiple root sprouts, applications must be made from several sides to ensure adequate spray coverage.

Prepare the desired volume of spray solution by mixing the amount of this product in water, shown in the following table:

Spray Solution

Desired Volume	Amount of Rodeo						
	3/4%	1%	1 1/4%	1 1/2%	2%	5%	8%
1 gal	1 fl oz	1 1/3 fl oz	1 2/3 fl oz	2 fl oz	2 2/3 fl oz	6 1/2 fl oz	10 1/4 fl oz
25 gal	1 1/2 pt	1 qt	1 1/4 qt	1 1/2 qt	2 qt	5 qt	2 gal
100 gal	3 qt	1 gal	1 1/4 gal	1 1/2 gal	2 gal	5 gal	8 gal

2 tablespoons = 1 fluid ounce

For use in knapsack sprayers, it is suggested that the recommended amount of this product be mixed with water in a larger container. Fill the knapsack sprayer with the mixed solution and add the correct amount of surfactant.

Wiper Applications

For wick or wiper applications, mix 1 gallon of this product with 2 gallons of clean water to make a 33 percent solution. Addition of a nonionic surfactant at a rate of 10 percent by volume of total herbicide solution is recommended.

Wiper applications can be used to control or suppress annual and perennial weeds listed on this label. In heavy weed stands, a double application in opposite directions may improve results. See the "Weed Controlled" section in this label for recommended timing, growth stage and other instructions for achieving optimum results

Aquatic and Other Noncrop Sites

Apply Rodeo as directed and under conditions described to control or partially control weeds and woody plants listed in the "Weeds Controlled" section in industrial, recreational and public areas or other similar aquatic or terrestrial sites on this label.

Aquatic Sites

Rodeo may be applied to emerged weeds in all bodies of fresh and brackish water which may be flowing, nonflowing or transient. This includes lakes, rivers, streams, ponds, estuaries, rice levees, seeps, irrigation and drainage ditches, canals, reservoirs, wastewater treatment facilities, wildlife habitat restoration and management areas, and similar sites.

If aquatic sites are present in the noncrop area and are part of the intended treatment, read and observe the following directions:

- **Rodeo does not control plants which are completely submerged or have a majority of their foliage under water.**
- There is no restriction on the use of treated water for irrigation, recreation or domestic purposes.
- Consult local state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.

- **NOTE:** Do not apply this product directly to water within 1/2 mile upstream of an active potable water intake in flowing water (i.e., river, stream, etc.) or within 1/2 mile of an active potable water intake in a standing body of water such as lake, pond or reservoir. To make aquatic applications around and within 1/2 mile of active potable water intakes, the water intake must be turned off for a minimum period of 48 hours after the application. The water intake may be turned on prior to 48 hours if the glyphosate level in the intake water is below 0.7 parts per million as determined by laboratory analysis. These aquatic applications may be made only in those cases where there are alternative water sources or holding ponds which would permit the turning off of an active potable water intake for a minimum period of 48 hours after the applications. This restriction does not apply to intermittent inadvertent overspray of water in terrestrial use sites.

- For treatments after drawdown of water or in dry ditches, allow 7 or more days after treatment before reintroduction of water to achieve maximum weed control. Apply this product within 1 day after drawdown to ensure application to actively growing weeds.

- Floating mats of vegetation may require retreatment. Avoid wash-off of sprayed foliage by spray boat or recreational boat backwash or by rainfall within 6 hours of application. Do not re-treat within 24 hours following the initial treatment.

- Applications made to moving bodies of water must be made while traveling upstream to prevent concentration of this herbicide in water. When making any bankside applications, do not overlap more than 1 foot into open water. Do not spray in bodies of water where weeds do not exist. The maximum application rate of 7 1/2 pints per acre must not be exceeded in any single broadcast application that is being made over water.

- When emerged infestations require treatment of the total surface area of impounded water, treating the area in strips may avoid oxygen depletion due to decaying vegetation. Oxygen depletion may result in fish kill.

Other Noncrop Sites

Rodeo may be used to control the listed weeds in the following terrestrial noncrop sites and/or in aquatic sites within these areas:

Habitat Restoration & Management Areas
Highways & Roadsides
Industrial Plant Sites
Petroleum Tank Farms
Pipeline, Power, Telephone & Utility Rights-of-Way
Pumping Installations
Railroads
Similar Sites

Cut Stump Application

Woody vegetation may be controlled by treating freshly cut stumps of trees and resprouts with this product. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut vegetation close to the soil surface. **Apply a 50 to 100 percent solution of this product to freshly cut surface immediately after cutting.** Delay in applying this product may result in reduced performance. For best results, trees should be cut during periods of active growth and full leaf expansion.

When used according to directions for cut stump application, this product will control, partially control or suppress most woody brush and tree species, some of which are listed below:

Common Name	Scientific Name
Alder	*Alnus spp.*
Coyote brush [1]	*Baccharis consanguinea*
Dogwood [1]	*Cornus spp.*
Eucalyptus	*Eucalyptus spp.*
Hickory [1]	*Carya spp.*
Madrone	*Arbutus menziesii*
Maple [1]	*Acer spp.*
Oak	*Quercus spp.*
Poplar [1]	*Populus spp.*
Reed, giant	*Arundo donax*
Salt cedar	*Tamarix spp.*
Sweet gum [1]	*Liquidambar styraciflua*
Sycamore [1]	*Platanus occidentalis*
Tan oak	*Lithocarpus densiflorus*
Willow	*Salix spp.*

[1] Rodeo is not approved for this use on these species in the state of California.

Wildlife Habitat Restoration and Management Areas

Rodeo is recommended for the restoration and/or maintenance of native habitat and in wildlife management areas.

Habitat Restoration and Maintenance: When applied as directed, exotic and other undesirable vegetation may be controlled in habitat management areas. Applications may be made to allow recovery of native plant species, to open up water to attract waterfowl, and for similar broad-spectrum vegetation control requirements in habitat management areas. Spot treatments may be made to selectively remove unwanted plants for habitat enhancement. For spot treatments, care should be exercised to keep spray off of desirable plants.

Wildlife Food Plots: Rodeo may be used as a site preparation treatment prior to planting wildlife food plots. Apply as directed to control vegetation in the plot area. Any wildlife food species may be planted after applying this product, or native species may be allowed to reinfest the area. If tillage is needed to prepare a seedbed, wait 7 days after applying this product before tilling to allow for maximum effectiveness.

Injection and Frill Applications

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment which must penetrate into living tissue. Apply the equivalent of 1 ml of this product per 2 to 3 inches of trunk diameter. This is best achieved by applying 25 to 100 percent concentration of this product either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying dilute material to a continuous frill or more closely spaced cuttings. Avoid application techniques that allow runoff to occur from frill or cut areas in species that exude sap freely after frills or cutting. In species such as these, make frill or cut at an oblique angle so as to produce a cupping effect and use undiluted material. For best results, applications should be made during periods of active growth and full leaf expansion.

This treatment will control the following woody species:

Common Name	Scientific Name
Oak	*Quercus spp.*
Poplar	*Populus spp.*
Sweet gum	*Liquidambar styraciflua*
Sycamore	*Platanus occidentalis*

This treatment will suppress the following woody species:

Common Name	Scientific Name
Black gum [1]	*Nyssa sylvatica*
Dogwood	*Cornus spp.*
Hickory	*Carya spp.*
Maple, red	*Acer rubrum*

[1] Rodeo is not approved for this use on this species in the state of California.

Release of Bermudagrass or Bahiagrass on Noncrop Sites

Release Of Dormant Bermudagrass and Bahiagrass

When applied as directed, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass or bahiagrass. Make applications to dormant bermudagrass or bahiagrass.

For best results on winter annuals, treat when weeds are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is in or beyond the 4 to 6-leaf stage.

Weeds Controlled

Rate recommendations for control or suppression of winter annuals and tall fescue are listed below.

Apply the recommended rates of this product in 10 to 25 gallons of water per acre plus 2 quarts nonionic surfactant per 100 gallons of total spray volume.

Weeds Controlled or Suppressed [1]

Note: C = Controlled; S = Suppressed

	Rate of Rodeo (Fluid Ounces Per Acre)					
Weed Species	6	9	12	18	24	48
Barley, little *Hordeum pusillum*	S	C	C	C	C	C
Bedstraw, catchweed *Galium aparine*	S	C	C	C	C	C
Bluegrass, annual *Poa annua*	S	C	C	C	C	C
Chervil *Chaerophyllum tainturieri*	S	C	C	C	C	C
Chickweed, common *Stellaria media*	S	C	C	C	C	
Clover, crimson *Trifolium incarnatum*	•	S	S	C	C	C
Clover, large hop *Trifolium campestre*	•	S	S	C	C	C
Speedwell, corn *Veronica arvensis*	S	C	C	C	C	C
Fescue, tall *Festuca arundinacea*	•	•	•	•	S	S
Geranium, Carolina *Geranium carolinianum*	•	•	S	S	C	C
Henbit *Lamium amplexicaule*	•	S	C	C	C	C
Ryegrass, Italian *Lolium multiflorum*	•	•	S	C	C	C
Vetch, common *Vicia sativa*	•	•	S	C	C	C

[1] These rates apply only to sites where an established competitive turf is present.

Release of Actively Growing Bermudagrass

NOTE: Use only on sites where bahiagrass or bermudagrass are desired for ground cover and some temporary injury or yellowing of the grasses can be tolerated.

When applied as directed, this product will aid in the release of bermudagrass by providing control of annual species listed in the "Weeds Controlled" section in this label, and suppression or partial control of certain perennial weeds.

For control or suppression of those annual species listed in this label, use 3/4 to 2 1/4 pints of this product as a broadcast spray in 10 to 25 gallons of spray solution per acre, plus 2 quarts of a nonionic surfactant per 100 gallons of total spray volume. Use the lower rate when treating annual weeds below 6 inches in height (or length of runner in annual vines). Use the higher rate as size of plants increases or as they approach flower or seedhead formation.

Use the higher rate for partial control or longer-term suppression of the following perennial species. Use lower rates for shorter-term suppression of growth.

Bahiagrass	Johnsongrass [I]
Dallisgrass	Trumpetcreeper [H]
Fescue (tall)	Vaseygrass

[I] Johnsongrass is controlled at the higher rate.
[H] Suppression at the higher rate only.

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

Bahiagrass Seedhead and Vegetative Suppression

When applied as directed in the "Noncrop Sites" section in this label, this product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with single applications and approximately 120 days with sequential applications.

Apply this product 1 to 2 weeks after full green-up of bahiagrass or after the bahiagrass has been mowed to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 5 fluid ounces per acre of this product, plus 2 quarts of an approved nonionic surfactant per 100 gallons of total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus nonionic surfactant may be made at approximately 45-day intervals to extend the period of seedhead and vegetative growth suppression. For continued vegetative growth suppression, sequential applications must be made prior to seedhead emergence.

Apply no more than 2 sequential applications per year. As a first sequential application, apply 3 fluid ounces of this product per acre plus nonionic surfactant. A second sequential application of 2 to 3 fluid ounces per acre plus nonionic surfactant may be made approximately 45 days after the last application.

Annual Grass Growth Suppression

For growth suppression of some annual grasses, such as annual ryegrass, wild barley and wild oats growing in coarse turf on roadsides or other industrial areas, apply 3 to 4 ounces of this product in 10 to 40 gallons of spray solution per acre. Mix 2 quarts of a nonionic surfactant per 100 gallons of spray solution. Applications should be made when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments made after seedhead emergence may cause injury to the desired grasses.

Weeds Controlled

Annual Weeds

Apply to actively growing annual grasses and broadleaf weeds.

Allow at least 3 days after application before disturbing treated vegetation. After this period the weeds may be mowed, tilled or burned. See "Directions for Use," "General Information" and "Mixing and Application Instructions" for labeled uses and specific application instructions.

Broadcast Application Rates: Use 1 1/2 pints of this product per acre plus 2 or more quarts of a nonionic surfactant per 100 gallons of spray solution if weeds are less than 6 inches tall. If weeds are greater than 6 inches tall, use 2 1/2 pints of this product per acre plus 2 or more quarts of an approved nonionic surfactant per 100 gallons of spray solution.

Hand-Held, High-Volume Application Rates: Use a 3/4 percent solution of this product in water plus 2 or more quarts of a nonionic surfactant per 100 gallons of spray solution and apply to foliage of vegetation to be controlled.

When applied as directed, Rodeo plus nonionic surfactant will control the following annual weeds:

Common Name	Scientific Name
Balsamapple [I]	*Momordica charantia*
Barley	*Hordeum vulgare*
Barnyardgrass	*Echinochloa crus-galli*
Bassia, fivehook	*Bassia hyssopifolia*
Bluegrass, annual	*Poa annua*
Bluegrass, bulbous	*Poa bulbosa*
Brome	*Bromus spp.*
Buttercup	*Ranunculus spp.*
Cheat	*Bromus secalinus*
Chickweed, mousear	*Cerastium vulgatum*
Cocklebur	*Xanthium strumarium*
Corn, volunteer	*Zea mays*
Crabgrass	*Digitaria spp.*
Dwarfdandelion	*Krigia cespitosa*
Falseflax, smallseed	*Camelina microcarpa*
Fiddleneck	*Amsinckia spp.*
Flaxleaf fleabane	*Conyza bonariensis*
Fleabane	*Erigeron spp.*
Foxtail	*Setaria spp.*
Foxtail, Carolina	*Alopecurus carolinianus*
Groundsel, common	*Senecio vulgaris*
Horseweed/Marestail	*Conyza canadensis*
Kochia	*Kochia scoparia*
Lambsquarters, common	*Chenopodium album*
Lettuce, prickly	*Lactuca serriola*
Morningglory	*Ipomoea spp.*
Mustard, blue	*Chorispora tenella*
Mustard, tansy	*Descurainia pinnata*
Mustard, tumble	*Sisymbrium altissimum*
Mustard, wild	*Sinapis arvensis*
Oats, wild	*Avena fatua*
Panicum	*Panicum spp.*
Pennycress, field	*Thlaspi arvense*
Pigweed, redroot	*Amaranthus retroflexus*
Pigweed, smooth	*Amaranthus hybridus*
Ragweed, common	*Ambrosia artemisiifolia*
Ragweed, giant	*Ambrosia trifida*
Rocket, London	*Sisymbrium irio*
Rye	*Secale cereale*
Ryegrass, Italian [H]	*Lolium multiflorum*
Sandbur, field	*Cenchrus spp.*
Shattercane	*Sorghum bicolor*
Shepherd's-purse	*Capsella bursa-pastoris*
Signalgrass, broadleaf	*Brachiaria platyphylla*
Smartweed, Pennsylvania	*Polygonum pensylvanicum*
Sowthistle, annual	*Sonchus oleraceus*

Spanishneedles [2]	*Bidens bipinnata*
Stinkgrass	*Eragrostis cilianensis*
Sunflower	*Helianthus annuus*
Thistle, Russian	*Salsola kali*
Spurry, umbrella	*Holosteum umbellatum*
Velvetleaf	*Abutilon theophrasti*
Wheat	*Triticum aestivum*
Witchgrass	*Panicum capillare*

[1] Apply with hand-held equipment only.
[2] Apply 3 pints of this product per acre.

Annual weeds will generally continue to germinate from seed throughout the growing season. Repeat treatments will be necessary to control later germinating weeds.

Perennial Weeds

Apply Rodeo to control most vigorously growing perennial weeds. Unless otherwise directed, apply when target plants are actively growing and most have reached early head or early bud stage of growth. Unless otherwise directed, allow at least 7 days after application before disturbing vegetation.

NOTE: If weeds have been mowed or tilled, do not treat until regrowth has reached the recommended stages. Fall treatments must be applied before a killing frost.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed.

Specific Weed Control Recommendations: For perennial weeds, apply the recommended rate plus 2 or more quarts of a nonionic surfactant per 100 gallons of spray solution. See the "General Information", "Directions for Use" and "Mixing and Application" sections in this label for specific uses and application instructions.

When applied as directed, Rodeo plus nonionic surfactant will control the following perennial weeds: (Numbers in parentheses "(-)" following common name of a listed weed species refer to "Specific Perennial Weed Control Recommendations" for that weed which follow the species listing.)

Common Name	Scientific Name
Alfalfa (31)	*Medicago sativa*
Alligatorweed [1] (1)	*Alternanthera philoxeroides*
Anise/Fennel (31)	*Foeniculum vulgare*
Artichoke, Jerusalem (31)	*Helianthus tuberosus*
Bahiagrass (31)	*Paspalum notatum*
Bermudagrass (2)	*Cynodon dactylon*
Bindweed, field (3)	*Convolvulus arvensis*
Bluegrass, Kentucky (12)	*Poa pratensis*
Blueweed, Texas (3)	*Helianthus ciliaris*
Brackenfern (4)	*Pteridium spp.*
Bromegrass, smooth (12)	*Bromus inermis*
Canarygrass, reed (12)	*Phalaris arundinacea*
Cattail (5)	*Typha spp.*
Clover, red (31)	*Trifolium pratense*
Clover, white (31)	*Trifolium repens*
Cogongrass (6)	*Imperata cylindrica*
Cordgrass (7)	*Spartina spp.*
Cutgrass, giant [1] (8)	*Zizaniopsis miliacea*
Dallisgrass (31)	*Paspalum dilatatum*
Dandelion (31)	*Taraxacum officinale*
Dock, curly (31)	*Rumex crispus*
Dogbane, hemp (9)	*Apocynum cannabinum*
Fescue (31)	*Festuca spp.*
Fescue, tall (10)	*Festuca arundinacea*
Guineagrass (11)	*Panicum maximum*
Hemlock, poison (31)	*Conium maculatum*
Horsenettle (31)	*Solanum carolinense*
Horseradish (9)	*Armoracia rusticana*
Ice Plant (22)	*Mesembryanthemum crystallinum*
Johnsongrass (12)	*Sorghum halepense*
Kikuyugrass (21)	*Pennisetum clandestinum*
Knapweed (9)	*Centaurea repens*
Lantana (13)	*Lantana camara*
Lespedeza, common (31)	*Lespedeza striata*
Lespedeza, sericea (31)	*Lespedeza cuneata*
Loosestrife, purple (14)	*Lythrum salicaria*
Lotus, American (15)	*Nelumbo lutea*
Maidencane (16)	*Panicum hemitomon*
Milkweed (17)	*Asclepias spp.*
Muhly, wirestem (21)	*Muhlenbergia frondosa*
Mullein, common (31)	*Verbascum thapsus*
Napiergrass (31)	*Pennisetum purpureum*
Nightshade, silverleaf (9)	*Solanum elaeagnifolium*
Nutsedge, purple (18)	*Cyperus rotundus*
Nutsedge, yellow (18)	*Cyperus esculentus*
Orchardgrass (12)	*Dactylis glomerata*
Pampasgrass (19)	*Cortaderia jubata*
Paragrass (16)	*Brachiaria mutica*
Phragmites[11] (20)	*Phragmites spp.*
Quackgrass (21)	*Agropyron repens*
Reed, giant (22)	*Arundo donax*
Ryegrass, perennial (12)	*Lolium perenne*
Smartweed, swamp (31)	*Polygonum coccineum*
Spatterdock (23)	*Nuphar luteum*
Starthistle, yellow (31)	*Centaurea solstitialis*
Sweet potato, wild [1] (24)	*Ipomoea pandurata*
Thistle, artichoke (25)	*Cynara cardunculus*
Thistle, Canada (25)	*Cirsium arvense*
Timothy (12)	*Phleum pratense*
Torpedograss [1] (26)	*Panicum repens*
Tules, common (27)	*Scirpus acutus*
Vaseygrass (31)	*Paspalum urvillei*
Velvetgrass (31)	*Holcus spp.*
Waterhyacinth (28)	*Eichhornia crassipes*
Waterlettuce (29)	*Pistia stratiotes*
Waterprimrose (30)	*Ludwigia spp.*
Wheatgrass, western (12)	*Agropyron smithii*

[1] Partial control.
[11] Partial control in southeastern states. See "Specific Weed Control Recommendations" below.

Specific Perennial Weed Control Recommendations:

1. **Alligatorweed:** Apply 6 pints of this product per acre as a broadcast spray or as a 1 1/4 percent solution with hand-held equipment to provide partial control of alligatorweed. Apply when most of the target plants are in bloom. Repeat applications will be required to maintain such control.
2. **Bermudagrass:** Apply 7 1/2 pints of this product per acre as a broadcast spray or as a 1 1/2 percent solution with hand-held equipment. Apply when target plants are actively growing and when seedheads appear.
3. **Bindweed, field / Silverleaf Nightshade / Texas Blueweed:** Apply 6 to 7 1/2 pints of this product per acre as a broadcast spray west of the Mississippi River and 4 1/2 to 6 pints of this product per acre east of the Mississippi River. With hand-held equipment, use a 1 1/2 percent solution. Apply when target plants are actively growing and are at or beyond full bloom. For silverleaf nightshade, best results can be obtained when application is made after berries are formed. Do not treat when weeds are under drought stress. New leaf development indicates active growth. For best results apply in late summer or fall.
4. **Brackenfern:** Apply 4 1/2 to 6 pints of this product per acre as a broadcast spray or as a 3/4 to 1 percent solution with hand-held equipment. Apply to fully expanded fronds which are at least 18 inches long.
5. **Cattail:** Apply 4 1/2 to 6 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Apply when target plants are actively growing and are at or beyond the early-to-full bloom stage of growth. Best results are achieved when application is made during the summer or fall months.
6. **Cogongrass:** Apply 4 1/2 to 7 1/2 pints of this product per acre as a broadcast spray. Apply when cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.
7. **Cordgrass:** Apply 4 1/2 to 7 1/2 pints of this product per acre as a broadcast spray or as a 1 to 2 percent solution with hand-held equipment. Schedule applications in order to allow 6 hours before treated plants are covered by tidewater. The presence of debris and silt on the cordgrass plants will reduce performance. It may be necessary to wash targeted plants prior to application to improve uptake of this product into the plant.
8. **Cutgrass, giant:** Apply 6 pints of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment to provide partial control of giant cutgrass. Repeat applications will be required to maintain such control, especially where vegetation is partially submerged in water. Allow for substantial regrowth to the 7 to 10-leaf stage prior to retreatment.
9. **Dogbane, hemp / Knapweed / Horseradish:** Apply 6 pints of this product per acre as a broadcast spray or as a 1 1/2 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the late bud-to-flower stage of growth. For best results, apply in late summer or fall.
10. **Fescue, tall:** Apply 4 1/2 pints of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the boot-to-head stage of growth. When applied prior to the boot stage, less desirable control may be obtained.
11. **Guineagrass:** Apply 4 1/2 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Apply when target plants are actively growing and when most have reached at least the 7-leaf stage of growth.
12. **Johnsongrass / Bluegrass, Kentucky / Bromegrass, smooth / Canarygrass, reed / Orchardgrass / Ryegrass, perennial / Timothy / Wheatgrass, western:** Apply 3 to 4 1/2 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the boot-to-head stage of growth. When applied prior to the boot stage, less desirable control may be obtained. In the fall, apply before plants have turned brown.
13. **Lantana:** Apply this product as a 3/4 to 1 percent solution with hand-held equipment. Apply to actively growing lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth.
14. **Loosestrife, purple:** Apply 4 pints of this product per acre as a broadcast spray or as a 1 to 1 1/2 percent solution using hand-held equipment. Treat when plants are actively growing at or beyond the bloom stage of growth. Best results are achieved when application is made during summer or fall months. Fall treatments must be applied before a killing frost.
15. **Lotus, American:** Apply 4 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Treat when plants are actively growing at or beyond the bloom stage of growth. Best results are achieved when application is made during summer or fall months. Fall treatments must be applied before a killing frost. Repeat treatment may be necessary to control regrowth from underground parts and seeds.
16. **Maidencane / Paragrass:** Apply 6 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Repeat treatments will be required, especially to vegetation partially submerged in water. Under these conditions, allow for regrowth to the 7 to 10-leaf stage prior to retreatment.
17. **Milkweed, common:** Apply 4 1/2 pints of this product per acre as a broadcast spray or as a 1 1/2 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the late bud-to-flower stage of growth.
18. **Nutsedge: purple, yellow:** Apply 4 1/2 pints of this product per acre as a broadcast spray, or as a 3/4 percent solution with hand-held equipment to control existing nutsedge plants and immature nutlets attached to treated plants. Apply when target plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-term control.
19. **Pampasgrass:** Apply a 1 1/2 percent solution of this product with hand-held equipment when plants are actively growing.
20. **Phragmites:** For partial control of phragmites in Florida and the counties of other states bordering the Gulf of Mexico, apply 7 1/2 pints per acre as a broadcast spray or apply a 1 1/2 percent solution with hand-held equipment. In other areas of the U.S., apply 4 to 6 pints per acre as a broadcast spray or apply a 3/4 percent solution with hand-held equipment for partial control. For best results, treat during late summer or fall months when plants are actively growing and in full bloom. Due to the dense nature of the vegetation, which may prevent good spray coverage and uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop.
21. **Quackgrass / Kikuyugrass / Muhly, wirestem:** Apply 3 to 4 1/2 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment when most quackgrass or wirestem muhly is at least 6 inches in height (3 to 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.
22. **Reed, giant / Ice plant:** For control of giant reed and ice plant, apply a 1 1/2 percent solution of this product with hand-held equipment when plants are actively growing. For giant reed, best results are obtained when applications are made in late summer to fall.

29. **Spatterdock:** Apply 6 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Apply when most plants are in full bloom. For best results, apply during the summer or fall months.
24. **Sweet potato, wild:** Apply this product as a 1 1/2 percent solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications will be required. Allow the plant to reach the recommended stage of growth before retreatment.
25. **Thistle, Canada / artichoke:** Apply 3 to 4 1/2 pints of this product per acre as a broadcast spray or as a 1 1/2 percent solution with hand-held equipment for Canada thistle. To control artichoke thistle, apply a 2 percent solution as a spray-to-wet application. Apply when target plants are actively growing and are at or beyond the bud stage of growth.
26. **Torpedograss:** Apply 6 to 7 1/2 pints of this product per acre as a broadcast spray or as a 3/4 to 1 1/2 percent solution with hand-held equipment to provide partial control of torpedograss. Use the lower rates under terrestrial conditions, and the higher rates under partially submerged or a floating mat condition. Repeat treatments will be required to maintain such control.
27. **Tules, common:** Apply this product as a 1 1/2 percent solution with hand-held equipment. Apply to actively growing plants at or beyond the seedhead stage of growth. After application, visual symptoms will be slow to appear and may not occur for 3 or more weeks.
28. **Waterhyacinth:** Apply 5 to 6 pints of this product per acre as a broadcast spray or apply a 3/4 to 1 percent solution with hand-held equipment. Apply when target plants are actively growing and at or beyond the early bloom stage of growth. After application, visual symptoms may require 3 or more weeks to appear with complete necrosis and decomposition usually occuring within 60 to 90 days. Use the higher rates when more rapid visual effects are desired.
29. **Waterlettuce:** For control, apply a 3/4 to 1 percent solution of this product with hand-held equipment to actively growing plants. Use higher rates where infestations are heavy. Best results are obtained from mid-summer through winter applications. Spring applications may require retreatment.
30. **Waterprimrose:** Apply this product as a 3/4 percent solution using hand-held equipment. Apply to plants that are actively growing at or beyond the bloom stage of growth, but before fall color changes occur. Thorough coverage is necessary for best control.
31. **Other perennial weeds listed above:** Apply 4 1/2 to 7 1/2 pints of Rodeo per acre as a broadcast spray or apply as a 3/4 to 1 1/2 percent solution with hand-held equipment.

Woody Brush and Trees

NOTE: If brush has been mowed or tilled or trees have been cut, do not treat until regrowth has reached the recommended stage of growth.

Application Rates and Timing

When applied as a 5 to 8 percent solution as a directed application as described in the "Hand-Held and High-Volume Equipment" section, this product will control or partially control all wood brush and tree species listed in this section of this label. Use the higher rate of application for dense stands and larger woody brush and trees.

Specific Brush or Tree Control Recommendations: Numbers in parentheses "(-)" following the common name of a listed brush or tree species refer to "Specific Brush or Tree Control Recommendations" which follow the species listing. See this section for specific application rates and timing for listed species.

For woody brush and trees, apply the recommended rate plus 2 or more quarts of a nonionic surfactant per 100 gallons of spray solution when plants are actively growing and, unless otherwise directed, after full-leaf expansion. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when application is made in the spring or early summer when brush species are at high moisture content and are flowering. Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

See the "Directions for Use" and "Mixing and Application Instructions" sections in this label for labeled use and specific application instructions. **When applied as directed, Rodeo plus nonionic surfactant will control the following woody brush plants and trees:** (Numbers in parentheses "(-)" following common name of a listed brush or tree species refer to "Specific Brush or Tree Control Recommendations" for that species which follow the species listing.)

Common Name	Scientific Name
Alder (1)	*Alnus spp.*
Ash [1] (20)	*Fraxinus spp.*
Aspen, quaking (2)	*Populus tremuloides*
Beardover, Beanmat (20)	*Chamaebatia foliolosa*
Birch (3)	*Betula spp.*
Blackberry (1)	*Rubus spp.*
Broom, French (4)	*Cytisus monspessulanus*
Broom, Scotch (4)	*Cytisus scoparius*
Buckwheat, California [1] (5)	*Eriogonum fasciculatum*
Cascara [1] (20)	*Rhamnus purshiana*
Catclaw [1] (6)	*Acacia greggi*
Ceanothus (20)	*Ceanothus spp.*
Chamise (17)	*Adenostoma fasciculatum*
Cherry, bitter (7)	*Prunus emarginata*
Cherry, black (7)	*Prunus serotina*
Cherry, pin (7)	*Prunus pensylvanica*
Coyote brush (8)	*Baccharis consanguinea*
Creeper, Virginia [1] (20)	*Parthenocissus quinquefolia*
Dewberry (1)	*Rubus trivialis*
Dogwood (9)	*Cornus spp.*
Elderberry (3)	*Sambucus spp.*
Elm [1] (20)	*Ulmus spp.*
Eucalyptus, bluegum (10)	*Eucalyptus globulus*
Hasardia [1] (5)	*Haplopappus squarrosus*
Hawthorn (2)	*Crataegus spp.*
Hazel (3)	*Corylus spp.*
Hickory (9)	*Carya spp.*
Holly, Florida (11) (Brazilian pepppertree)	*Schinus terebinthifolius*
Honeysuckle (1)	*Lonicera spp.*
Hornbeam, American (20)	*Carpinus caroliniana*
Kudzu (12)	*Pueraria lobata*
Locust, black [1] (20)	*Robinia pseudoacacia*
Manzanita (20)	*Arctostaphylos spp.*

Maple, red [1] (13)	*Acer rubrum*
Maple, sugar (14)	*Acer saccharum*
Maple, vine [1] (20)	*Acer circinatum*
Monkey flower [1] (5)	*Mimulus guttatus*
Oak, black [1] (20)	*Quercus velutina*
Oak, northern pin (14)	*Quercus palustris*
Oak, post (1)	*Quercus stellata*
Oak, red (14)	*Quercus rubra*
Oak, southern red (7)	*Quercus falcata*
Oak, white [1] (20)	*Quercus alba*
Persimmon [1] (20)	*Diospyros spp.*
Poison-ivy (15)	*Rhus radicans*
Poison-oak (15)	*Rhus toxicodendron*
Poplar, yellow [1] (20)	*Liriodendron tulipifera*
Prunus (7)	*Prunus spp.*
Raspberry (1)	*Rubus spp.*
Redbud, eastern (20)	*Cercis canadensis*
Rose, multiflora (16)	*Rosa multiflora*
Russian-olive (20)	*Elaeagnus angustifolia*
Sage: black (17), white	*Salvia spp.*
Sagebrush, California (17)	*Artemisia californica*
Salmonberry (3)	*Rubus spectabilis*
Salt cedar [1] (9)	*Tamarix spp.*
Saltbush, sea myrtle (18)	*Baccharis halimifolia*
Sassafras (20)	*Sassafras albidum*
Sourwood [1] (20)	*Oxydendrum arboreum*
Sumac, poison [1] (20)	*Rhus vernix*
Sumac, smooth [1] (20)	*Rhus glabra*
Sumac, winged [1] (20)	*Rhus copallina*
Sweetgum (7)	*Liquidambar styraciflua*
Swordfern [1] (20)	*Polystichum munitum*
Tallowtree, Chinese (17)	*Sapium sebiferum*
Thimbleberry (3)	*Rubus parviflorus*
Tobacco, tree [1] (5)	*Nicotiana glauca*
Trumpetcreeper (2)	*Campsis radicans*
Waxmyrtle, southern [1] (11)	*Myrica cerifera*
Willow (19)	*Salix spp.*

[1] Partial control (See below for control or partial control instructions.)

Specific Brush or Tree Control Recommendations:

1. **Alder / Blackberry / Dewberry / Honeysuckle / Oak, Post / Raspberry:** For control, apply 4 1/2 to 6 pints per acre as a broadcast spray or as a 3/4 to 1 1/4 percent solution with hand-held equipment.
2. **Aspen, Quaking / Hawthorn / Trumpetcreeper:** For control, apply 3 to 4 1/4 pints of this product per acre as a broadcast spray or as a 3/4 to 1 1/4 percent solution with hand-held equipment.
3. **Birch / Elderberry / Hazel / Salmonberry / Thimbleberry:** For control, apply 3 pints per acre of this product as a broadcast spray or as a 3/4 percent solution with hand-held equipment.
4. **Broom, French / Broom, Scotch:** For control, apply a 1 1/4 to 1 1/2 percent solution with hand-held equipment.
5. **Buckwheat, California / Hazardia / Monkey flower / Tobacco, tree:** For partial control of these species, apply a 3/4 to 1 1/2 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.
6. **Catsclaw:** For partial control, apply a 1 1/4 to 1 1/2 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.
7. **Cherry, bitter / Cherry, black / Cherry, pin / Oak, southern red / Sweetgum / Prunus:** For control, apply 3 to 7 1/2 pints of this product per acre as a broadcast spray or as a 1 to 1 1/2 percent solution with hand-held equipment.
8. **Coyote brush:** For control, apply a 1 1/4 to 1 1/2 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.
9. **Dogwood / Hickory / Salt cedar:** For partial control, apply a 1 to 2 percent solution of this product with hand-held equipment or 6 to 7 1/2 pints per acre as a broadcast spray.
10. **Eucalyptus, bluegum:** For control of eucalyptus resprouts, apply a 1 1/2 percent solution of this product with hand-held equipment when resprouts are 6 to 12-feet tall. Ensure complete coverage. Apply when plants are actively growing. Avoid application to drought-stressed plants.
11. **Holly, Florida / Waxmyrtle, southern:** For partial control, apply this product as a 1 1/2 percent solution with hand-held equipment.
12. **Kudzu:** For control, apply 6 pints of this product per acre as a broadcast spray or as a 1 1/2 percent solution with hand-held equipment. Repeat applications will be required to maintain control.
13. **Maple, red:** For control, apply as a 3/4 to 1 1/4 percent solution with hand-held equipment when leaves are fully developed. For partial control, apply 2 to 7 1/2 pints of this product per acre as a broadcast spray.
14. **Maple, sugar / Oak: northern pin / Oak, red:** For control, apply as a 3/4 to 1 1/4 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.
15. **Poison-ivy / Poison-oak:** For control, apply 6 to 7 1/2 pints of this product per acre as a broadcast spray or as a 1 1/2 percent solution with hand-held equipment. Repeat applications may be required to maintain control. Fall treatments must be applied before leaves lose green color.
16. **Rose, multiflora:** For control, apply 3 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Treatments should be made prior to leaf deterioration by leaf-feeding insects.
17. **Sage, black / Sagebrush, California / Chamise / Tallowtree, Chinese:** For control of these species, apply a 3/4 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.
18. **Saltbush, sea myrtle:** For control, apply this product as a 1 percent solution with hand-held equipment.
19. **Willow:** For control, apply 4 1/2 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment.
20. **Other woody brush and trees listed above:** For partial control, apply 3 to 7 1/2 pints of this product per acre as a broadcast spray or as a 3/4 to 1 1/2 percent solution with hand-held equipment.

Warranty Disclaimer

Dow AgroSciences warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. All such risks shall be assumed by buyer.

Limitation of Remedies

The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

(1) Refund of purchase price paid by buyer or user for product bought, or
(2) Replacement of amount of product used.

Dow AgroSciences shall not be liable for losses or damages resulting from handling or use of this product unless Dow AgroSciences is promptly notified of such loss or damage in writing. In no case shall Dow AgroSciences be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer above and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Dow AgroSciences or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

*Trademark of Dow AgroSciences LLC
Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.

Label Code: D02-148-002
Replaces Label: D02-148-001

EPA-accepted 05/15/2002

Revisions:

1. Update of specific uses allowed in the state of California.

MATERIAL SAFETY DATA SHEET

Dow AgroSciences

Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

RODEO* HERBICIDE

Effective Date: 1/12/00
Product Code: 64825
MSDS: 006694

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Rodeo* Herbicide

COMPANY IDENTIFICATION:
Dow AgroSciences
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Glyphosate: N-(phosphono-methyl)glycine, Isopropylamine Salt	CAS # 038641-94-0	53.8%
Inert Ingredients, Total		46.2%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Hazardous Chemical. Clear, pale yellow liquid. May cause eye irritation. LD_{50} for skin absorption in rabbits is >5000 mg/kg. Oral LD_{50} for rats is >5000 mg/kg. Aerosol LC_{50} for rats is >6.37 mg/L for 4 hrs. Slightly toxic to aquatic organisms.

EMERGENCY PHONE NUMBER: 800-992-5994

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYE: May cause slight eye irritation. Corneal injury is unlikely.

SKIN: Essentially non-irritating to skin. A single prolonged exposure is not likely to result in the material being absorbed through the skin in harmful amounts. The LD_{50} for skin absorption in rabbits is >5000 mg/kg. Did not cause allergic skin reactions when tested in guinea pigs.

INGESTION: Single dose oral toxicity is extremely low. No hazards anticipated from swallowing small amounts incidental to normal handling operations. The oral LD_{50} for rats is >5000 mg/kg.

INHALATION: A single brief (minutes) inhalation exposure is not likely to cause adverse effects. The aerosol LC_{50} for rats is >6.37 mg/L for 4 hours.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: No relevant information found.

CANCER INFORMATION: Did not cause cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus.

REPRODUCTIVE EFFECTS: No relevant information found.

4. FIRST AID:

EYE: Flush eyes with plenty of water.

SKIN: Wash off in flowing water or shower.

INGESTION: No adverse effects anticipated by this route of exposure incidental to proper industrial handling.

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: >214°F (>101°C)
METHOD USED: Setaflash

FLAMMABLE LIMITS:
LFL: Not applicable
UFL: Not applicable

EXTINGUISHING MEDIA: Foam, CO_2, Dry Chemical

FIRE AND EXPLOSION HAZARDS: Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic irritating gases may be formed under fire conditions.

FIRE-FIGHTING EQUIPMENT: Use positive-pressure, self-contained breathing apparatus and full protective equipment.

MATERIAL SAFETY DATA SHEET

Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

Dow AgroSciences

RODEO* HERBICIDE

Effective Date: 1/12/00
Product Code: 84825
MSDS: 006694

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS: Absorb small spills with an inert absorbent material such as Hazorb, Zorball, sand, or dirt. Report large spills to Dow AgroSciences on 800-992-5994.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors and spray mist. Handle concentrate in ventilated area. Wash thoroughly with soap and water after handling and before eating, chewing gum, using tobacco, using the toilet or smoking. Keep away from food, feedstuffs, and water supplies. Store in original container with the lid tightly closed. Store above 10°F (-12°C) to keep from crystallizing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINES: None established

ENGINEERING CONTROLS: Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

EYE/FACE PROTECTION: Use safety glasses.

SKIN PROTECTION: No precautions other than clean body-covering clothing should be needed.

RESPIRATORY PROTECTION: For most conditions, no respiratory protection should be needed; however, if discomfort is experienced, use a NIOSH approved air-purifying respirator.

APPLICATIONS AND ALL OTHER HANDLERS: Please refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE: Clear, pale yellow liquid
DENSITY: 10.0 - 10.5 lbs/gal
pH: 4.6 – 5.0
ODOR: None
SOLUBILITY IN WATER: Miscible
SPECIFIC GRAVITY: 1.21 gm/L
FREEZING POINT: -7°F - -10°F (-21°C - -25°C)

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Stable under normal storage conditions.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Galvanized or unlined steel (except stainless steel) containers or spray tanks may produce hydrogen gas which may form a highly combustible gas mixture.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

MUTAGENICITY: Animal mutagenicity studies were negative.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL DATA:

ECOTOXICOLOGY:
Material is slightly toxic to aquatic organisms on an acute basis (LC_{50}/EC_{50} is between 10 and 100 mg/L in most sensitive species).
Acute LC_{50} for rainbow trout (Oncorhynchus mykiss) is 60 mg/L.
Material is practically non-toxic to birds on an acute basis (LD_{50} is >2000 mg/kg).
Acute oral LD_{50} in bobwhite (Colinus virginianus) is >2000 mg/kg.
The LC_{50} in earthworm Eisenia foetida is >1000 mg/kg.

*Trademark of Dow AgroSciences

MATERIAL SAFETY DATA SHEET

Dow AgroSciences

Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

RODEO* HERBICIDE

Effective Date: 1/12/00
Product Code: 64825
MSDS: 006694

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Do not contaminate water, food, or feed by storage or disposal. Excess wastes resulting from the use of this product may be disposed of on site according to label directions or at an approved waste disposal facility. Follow all local, state, and federal requirements for disposal.

14. TRANSPORT INFORMATION:

For DOT regulatory information, if required, consult transportation regulations, product shipping papers, or contact your Dow AgroSciences representative.

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Not to have met any hazard category

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: This product is not known to contain any substances subject to the disclosure requirements of

New Jersey
Pennsylvania

OSHA HAZARD COMMUNICATION STANDARD: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

16. OTHER INFORMATION:

MSDS STATUS: New
Reference: DR-0361-8028
Document Code: D03-148-001

The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult Dow AgroSciences For Further Information.

*Trademark of Dow AgroSciences

GLYPRO* HERBICIDE

Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268
Effective Date: 1/12/00
Product Code: 74370
MSDS: 006594

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Glypro* Herbicide
COMPANY IDENTIFICATION:
Dow AgroSciences
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Glyphosate: N-(phosphonomethyl)glycine, Isopropylamine Salt	CAS # 038641-94-0	50.8%
Inert Ingredients, Total		49.2%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shown, the identity may be made available as provided in this standard.

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW
Hazardous Chemical. Clear, pale yellow liquid. May cause eye irritation. LD_{50} for skin absorption in rabbits is >5000 mg/kg. Oral LD_{50} for rats is >5000 mg/kg. Aerosol LC_{50} for rats is >6.37 mg/L for 4 hrs. Slightly toxic to aquatic organisms.
EMERGENCY PHONE NUMBER: 800-992-5994
POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.
EYE: May cause slight eye irritation. Corneal injury is unlikely.
SKIN: Essentially non-irritating to skin. A single prolonged exposure is not likely to result in the material being absorbed through the skin in harmful amounts. The LD_{50} for skin absorption in rabbits is >5000 mg/kg. Did not cause allergic skin reactions when tested in guinea pigs.
INGESTION: Single dose oral toxicity is extremely low. No hazards anticipated from swallowing small amounts incidental to normal handling operations. The oral LD_{50} for rats is >5000 mg/kg.
INHALATION: A single brief (minutes) inhalation exposure is not likely to cause adverse effects. The aerosol LC_{50} for rats is >6.37 mg/L for 4 hours.
SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: No relevant information found.
CANCER INFORMATION: Did not cause cancer in laboratory animals.
TERATOLOGY (BIRTH DEFECTS): Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus.
REPRODUCTIVE EFFECTS: No relevant information found.

4. FIRST AID:

EYE: Flush eyes with plenty of water.
SKIN: Wash off in flowing water or shower.
INGESTION: No adverse effects anticipated by this route of exposure incidental to proper industrial handling.
INHALATION: Remove to fresh air if effects occur. Consult a physician.
NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: >214°F (>101°C)
METHOD USED: Setaflash
FLAMMABLE LIMITS:
LEL: Not applicable
UEL: Not applicable
EXTINGUISHING MEDIA: Foam, CO_2, Dry Chemical
FIRE AND EXPLOSION HAZARDS: Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic irritating gases may be formed under fire conditions.
FIRE-FIGHTING EQUIPMENT: Use positive-pressure, self-contained breathing apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS: Absorb small spills with an inert absorbent material such as Hasorb, Zorball, sand, or dirt. Report large spills to Dow AgroSciences at 800-992-5994.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors and spray mist. Handle concentrate in ventilated area. Wash thoroughly with soap and water after handling and before eating, chewing gum, using tobacco, using the toilet or smoking. Keep away from food, foodstuffs, and water supplies. Store in original container with the lid tightly closed. Store above 10°F (−12°C) to keep from crystallizing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.
EXPOSURE GUIDELINES: None established
ENGINEERING CONTROLS: Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.
RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:
EYE/FACE PROTECTION: Use safety glasses.
SKIN PROTECTION: No precautions other than clean body-covering clothing should be needed.
RESPIRATORY PROTECTION: For most conditions, no respiratory protection should be needed; however, if discomfort is experienced, use a NIOSH approved air-purifying respirator.
APPLICATIONS AND ALL OTHER HANDLERS: Please refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE: Clear, pale yellow liquid
DENSITY: 10.0 - 10.5 lbs/gal
pH: 4.0 - 5.0
ODOR: None
SOLUBILITY IN WATER: Miscible
SPECIFIC GRAVITY: 1.21 g/mL
FREEZING POINT: −7°F - −10°F (−21°C - −25°C)

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Stable under normal storage conditions.
INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Galvanized or unlined steel (except stainless steel) containers or spray tanks may produce hydrogen gas which may form a highly combustible gas mixture.
HAZARDOUS DECOMPOSITION PRODUCTS: None known.
HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

MUTAGENICITY: Animal mutagenicity studies were negative.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL DATA:
ECOTOXICOLOGY:
Material is slightly toxic to aquatic organisms on an acute basis (LC_{50}/EC_{50} is between 10 and 100 mg/L in most sensitive species).
Acute LC_{50} for rainbow trout (Oncorhynchus mykiss) is 60 mg/L.
Material is practically non-toxic to birds on an acute basis (LD_{50} is >2000 mg/kg).
Acute oral LD_{50} in bobwhite (Colinus virginianus) is >2000 mg/kg.
The LC_{50} in earthworm Eisenia foetida is >1000 mg/kg.

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Do not contaminate water, food, or feed by storage or disposal. Excess wastes resulting from the use of this product may be disposed of on site according to label directions or at an approved waste disposal facility. Follow all local, state, and federal requirements for disposal.

14. TRANSPORT INFORMATION:

For DOT regulatory information, if required, consult transportation regulations, product shipping papers, or contact your Dow AgroSciences representative.

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.
U.S. REGULATIONS
SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.
SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:
Not to have met any hazard category
TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.
STATE RIGHT-TO-KNOW: This product is not known to contain any substances subject to the disclosure requirements of
New Jersey
Pennsylvania
OSHA HAZARD COMMUNICATION STANDARD: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

16. OTHER INFORMATION:

MSDS STATUS: New
Reference: DR-0361-8028
Document Code: 003-01-002
The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult Dow AgroSciences For Further Information.
*Trademark of Dow AgroSciences

GLYPRO* HERBICIDE

Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268
Effective Date: 1/12/00
Product Code: 74370
MSDS: 008694

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Glypro* Herbicide
COMPANY IDENTIFICATION:
Dow AgroSciences
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Glyphosate: N-(phosphonomethyl)glycine, Isopropylamine Salt	CAS # 038641-94-0	53.8%
Inert Ingredients, Total		46.2%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shown, the identity may be made available as provided in this standard.

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW
Hazardous Chemical. Clear, pale yellow liquid. May cause eye irritation. LD_{50} for skin absorption in rabbits is >5000 mg/kg. Oral LD_{50} for rats is >5000 mg/kg. Aerosol LC_{50} for rats is >6.37 mg/L for 4 hrs. Slightly toxic to aquatic organisms.
EMERGENCY PHONE NUMBER: 800-992-5994
POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.
EYE: May cause slight eye irritation. Corneal injury is unlikely.
SKIN: Essentially non-irritating to skin. A single prolonged exposure is not likely to result in the material being absorbed through the skin in harmful amounts. The LD_{50} for skin absorption in rabbits is >5000 mg/kg. Did not cause allergic skin conditions when tested in guinea pigs.
INGESTION: Single dose oral toxicity is extremely low. No hazards anticipated from swallowing small amounts incidental to normal handling operations. The oral LD_{50} for rats is >5000 mg/kg.
INHALATION: A single brief (minutes) inhalation exposure is not likely to cause adverse effects. The aerosol LC_{50} for rats is >6.37 mg/L for 4 hours.
SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: No relevant information found.
CANCER INFORMATION: Did not cause cancer in laboratory animals.
TERATOLOGY (BIRTH DEFECTS): Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus.
REPRODUCTIVE EFFECTS: No relevant information found.

4. FIRST AID:

EYE: Flush eyes with plenty of water.
SKIN: Wash off in flowing water or shower.
INGESTION: No adverse effects anticipated by this route of exposure incidental to proper industrial handling.
INHALATION: Remove to fresh air if effects occur. Consult a physician.
NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: >214°F (>101°C)
METHOD USED: Setaflash
FLAMMABLE LIMITS:
LFL: Not applicable
UFL: Not applicable
EXTINGUISHING MEDIA: Foam, CO_2, Dry Chemical
FIRE AND EXPLOSION HAZARDS: Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic irritating gases may be formed under fire conditions.
FIRE-FIGHTING EQUIPMENT: Use positive-pressure, self-contained breathing apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS: Absorb small spills with an inert absorbent material such as Hazorb, Zorball, sand, or dirt. Report large spills to Dow AgroSciences on 800 992-5994.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors and spray mist. Handle concentrate in ventilated area. Wash thoroughly with soap and water after handling and before eating, chewing gum, using tobacco, using the toilet or smoking. Keep away from food, feedstuffs, and water supplies. Store in original container with the lid tightly closed. Store above 10°F (−12°C) to keep from crystallizing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.
EXPOSURE GUIDELINES: None established
ENGINEERING CONTROLS: Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.
RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:
EYE/FACE PROTECTION: Use safety glasses.
SKIN PROTECTION: No precautions other than clean body-covering clothing should be needed.
RESPIRATORY PROTECTION: For most conditions, no respiratory protection should be needed; however, if discomfort is experienced, use a NIOSH approved air-purifying respirator.
APPLICATIONS AND ALL OTHER HANDLERS: Please refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE: Clear, pale yellow liquid
DENSITY: 10.0 - 10.5 lb/gal
pH: 4.8 - 5.0
ODOR: None
SOLUBILITY IN WATER: Miscible
SPECIFIC GRAVITY: 1.21 g/mL
FREEZING POINT: −7°F - −10°F (−21°C - −25°C)

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Stable under normal storage conditions.
INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Galvanized or unlined steel (except stainless steel) containers or spray tanks may produce hydrogen gas which may form a highly combustible gas mixture.
HAZARDOUS DECOMPOSITION PRODUCTS: None known.
HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

MUTAGENICITY: Animal mutagenicity studies were negative.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL DATA:
ECOTOXICOLOGY:
Material is slightly toxic to aquatic organisms on an acute basis (LC_{50}/EC_{50} is between 10 and 100 mg/L in most sensitive species).
Acute LC_{50} for rainbow trout (Oncorhynchus mykiss) is 60 mg/L.
Material is practically non-toxic to birds on an acute basis (LD_{50} is >2000 mg/kg).
Acute oral LD_{50} in bobwhite (Colinus virginianus) is >2000 mg/kg.
The LC_{50} in earthworm Eisenia foetida is >1000 mg/kg.

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Do not contaminate water, food, or feed by storage or disposal. Excess wastes resulting from the use of this product may be disposed of on site according to label directions or at an approved waste disposal facility. Follow all local, state, and federal requirements for disposal.

14. TRANSPORT INFORMATION:

For DOT regulatory information, if required, consult transportation regulations, product shipping papers, or contact your Dow AgroSciences representative.

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.
U.S. REGULATIONS
SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.
SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:
Not to have met any hazard category
TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.
STATE RIGHT-TO-KNOW: This product is not known to contain any substances subject to the disclosure requirements of
New Jersey
Pennsylvania
OSHA HAZARD COMMUNICATION STANDARD: This product is a 'Hazardous Chemical' as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

16. OTHER INFORMATION:

MSDS STATUS: New
Reference: DR-0361-8028
Document Code: 003-077-002
The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult Dow AgroSciences For Further Information.
*Trademark of Dow AgroSciences

APPENDIX D

Coastal Consistency Determination

Coastal Zone Management Act (CZMA)
Consistency Determination
for
Control of *Phragmites australis* at the US Army Transportation Center, Fort Eustis, Virginia

This document provides the Commonwealth of Virginia with the Fort Eustis Consistency Determination under CZMA section 307(c) (1) and 15 CFR Part 930, sub-part C, for the Control of *Phragmites australis* at the US Army Transportation Center, Fort Eustis, Virginia. The information in this Consistency Determination is provided pursuant to 15 CFR section 930.39. This activity includes:

[The following paragraphs of text summarize the proposed federal activity. A full description of the proposed activity may be found in the Environmental Assessment for the Control of Phragmites australis at the US Army Transportation Center, Fort Eustis, Virginia which is incorporated by reference into this Consistency Determination].

The US Army, Fort Eustis proposes to conduct an aerial spray of stands of *Phragmites australis* at its installation with the intent of controlling the spread of this invasive plant species. Aerial spray will be the primary means of reducing Phragmites stands; however, limited ground spray methods may be used to augment aerial spray if feasible. Fort Eustis comprises 8,228 acres of land of which 2,212 acres are tidal and non-tidal wetlands. The common reed *Phragmites australis* continues to expand into more wetlands areas where this plant out competes native wetlands species thereby reducing the ecological and overall utility value of these areas. Biodiversity and functions of wetlands are reduced, and the land utility for training and security becomes compromised. Additionally, a shoreline stabilization project recently initiated to prevent erosion of Harrison Road (located along the James River) could be compromised by *Phragmites australis* expansion. Stabilization of Harrison Road includes planting of *Spartina* to reduce the erosional effect of wave action on the road. Additionally, the *Spartina* marsh includes the added benefit of aesthetics, improvement of sport fishing opportunities and recreational wildlife watching. *Phragmites* expansion into this new marsh could remove the *Spartina.*

The project involves implementing measures to reduce the significant stands of *Phragmites australis* that are degrading wetlands sites and those threatening the Harrison Road stabilization project. Several control measures were evaluated with aerial spray being the primary means. An estimated 500 acres of land containing *Phragmites* will be treated. These areas are primarily located outside the installation cantonment area. One treatment per year for up to three years would occur in the month of October beginning in 2004.

Spraying will involve a UH-12 Raven rotor wing aircraft (or similar aircraft) equipped with 30-gallon capacity spray tanks. The applicator will be a state certified and licensed aerial pesticide applicator. The herbicide will be that containing glysophate as its active ingredient such as Rodeo which is specifically designed for use against invasive plant species (to include *Phragmites*) in aquatic environments. A quantity of 4-6 pints of herbicide will be used to treat one acre.

Appropriate measures will be utilized to prevent drift of herbicide beyond the targeted areas in accordance with manufacturer instructions. The responsibility to prevent spray drift beyond the targeted area rests with the applicator who must be state certified and licensed for such work.

Fort Eustis has determined that the Control of *Phragmites australis* affects the land or water uses or natural resources of Virginia in the following manner:

[Please refer to section IV Affected Environment and Environmental Consequences of the Environmental Assessment.

The Virginia Coastal Resources Management Program contains the following applicable enforceable policies:

Applicable Enforceable Policies	Federally Proposed Action's Effect
Fisheries Management The program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. This program is administered by the Virginia Marine Resources Commission (MRC) (Code of Virginia § 28.2-200 thru 28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Code of Virginia § 29.1-100 thru 29.1-570). The State Tributyltin Regulatory Program has been added to the Fisheries Management program. The General Assembly amended the Virginia Pesticide Use and Application Act as it related to the possession, sale, or use of marine antifoulant paints containing Tributyltin. The use of Tributyltin in boat paint constitutes a serious threat to important marine animal species. The Tributyltin program monitors boating activities and boat painting activities to ensure compliance with Tributyltin regulations promulgated pursuant to the amendment. The MRC, the DGIF, and Virginia Department of Agriculture Services share enforcement responsibilities (Code of Virginia § 3.1-249.59 thru 3.1-249.62).	**NO EFFECT:** Refer to analyses found in the Environmental Assessment. The proposed project does not propose to build, dump or otherwise trespass upon or over, encroach upon, take or use any material from the beds of the bays, ocean, rivers, streams or creeks within the jurisdiction of Virginia. The proposed project does not have a reasonably foreseeable effect on spawning/nursery or feeding grounds and therefore none on fisheries management per the Virginia Marine Resources Commission (MRC) (Code of Virginia § 28.2-200 thru 28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Code of Virginia § 29.1-100 thru 29.1-570). No direct spraying of surface waters is intended. All appropriate means of preventing drift of herbicide will be implemented. Additionally, no paints containing Tributyltin will be used under this proposed activity.
Subaqueous Lands Management The management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the DEQ, Water Division. The program is administered by the MRC (Code of Virginia § 28.2-1200 thru 28.2-1213).	**NO EFFECT:** No subaqueous land use is proposed under this action. This project involves no excavation, encroachments in, on, or over state-owned submerged lands.
Dunes Management Dune protection is carried out pursuant to the Coastal Primary	**NO EFFECT:** No primary sand dunes exist at Fort Eustis.

Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes. This program is administered by the MRC (Code of Virginia § 28.2-1400 thru 28.2-1420).	
Shoreline Sanitation The purpose of this program is to regulate the installation of septic tanks, set standards concerning soil types suitable for septic tanks, and specify minimum distances that tanks must be placed away from streams, rivers, and other waters of the Commonwealth. This program is administered by the Department of Health (Code of Virginia § 32.1-164 thru § 32.1-165).	**NO EFFECT:** No Septic Tanks are planned to be used in this project. Sanitary Sewer Service is provided throughout the Post. The system conveys wastewater sewage to an on-post pump station owned by Hampton Roads Sanitation District (HRSD). HRSD pumps the wastewater offsite to be treated at an HRSD treatment facility. The on-post sewage collection and pumping facilities, up to the HRSD pump station are owned by the Army, but could be privatized in the near future.
Air Pollution Control The program implements the federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards. This program is administered by the State Air Pollution Control Board (Code of Virginia § 10-1.1300).	**NO EFFECT:** **A Record of Non-Applicability RONA) concerning the general conformity rule (Code of Federal Regulations (CFR), Title 40 Part 51) has been prepared and included as an Appendix in the environmental assessment.**
Wetlands Management The purpose of the wetlands management program is to preserve tidal wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation. The tidal wetlands program is administered by the VAMRC (Code of Virginia § 28.2-1301 thru § 28.2-1320). The Virginia Water Protection Permit program administered by the DEQ includes protection of wetlands, both tidal and non-tidal. This program is authorized by Code of Virginia § 62.1-44.15.5 and the Water Quality Certification requirements of Section 401 of the Clean Water Act of 1972.	**NO EFFECT:** Wetlands (tidal and non-tidal) are specifically targeted for this project. Many wetlands at Fort Eustis contain stands of *Phragmites* which seriously degrade the quality of these areas. Removal of the *Phragmites* allows native vegetation to return. No excavation, fill or physical alteration of wetlands will occur.
Non-point Source Pollution Control Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to	**NO EFFECT:** ▪ No disturbance or excavation of soil or sediment is planned for this project. No construction of buildings, parking lots, roads, or installation of utilities is planned for this project.

decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth. This program is administered by the Department of Conservation and Recreation (DCR) (Code of Virginia § 10.1-560 et.seq.). According to the Department of Conservation and Recreation, the following activities are regulated by the Erosion and Sediment Control Law (Virginia Code section 10.1-567) and its implementing regulations if these activities involve 2,500 square feet or more of land disturbance: ▪ clearing and grading activities; ▪ installation of staging areas, parking lots, roads, buildings, utilities, or other structures; ▪ soil/dredge spoil areas; ▪ related land conservation activities.	
Point Source Pollution Control The point source program is administered by the State Water Control Board pursuant to Code of Virginia § 62.1-44.15. Point source pollution control is accomplished through the implementation of the National Pollutant Discharge Elimination System permit program established pursuant to Section 402 of the federal Clean Water Act and administered in Virginia as the Virginia Pollutant Discharge Elimination System permit program.	**NO EFFECT:** Indirect impacts to water resources have the potential to occur in the event of a spill or accidental release of a HM during construction proposed under this action. Standard operating procedures for the prevention of spills and contingency operations (in the event of a spill) are in place therefore no indirect effects to water resources would be expected to occur.

Coastal Lands Management	NO EFFECT
This program is a state-local cooperative program administered by the Chesapeake Bay Local Assistance Department and 84 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act; Code of Virginia § 10.1-2100 thru § 10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative Code 9 VAC 10-20-10 et seq.	**No alteration, excavation or encroachment into tidal or non-tidal wetlands or sub-aqueous lands are intended for this project.**

Ronnie T. Ellis
Colonel, US Army
Garrison Commander
Fort Eustis, Virginia

Date

APPENDIX E

Persons Consulted

Persons Consulted

Terry R. Sanders
Chief, Conservation Branch
Environmental and Natural Resources Division
US Army Transportation Center
Fort Eustis, Virginia

James Dolan
Wildlife Biologist
Versar, Inc

Yardley Butt
Environmental Protection Specialist
Conservation Branch
Environmental and Natural Resources Division
US Army Transportation Center
Fort Eustis, Virginia

Donald A. Teig
Command Entomologist
Headquarters, Air Combat Command
Langley Air Force Base, Virginia

APPENDIX F

References

References

1. Fort Eustis Integrated Natural Resources Management Plan, 1999.

2. US Army Transportation Center & Fort Eustis (TCFE) Regulation 200-6, Environmental Management, June 2003.

3. Environmental Assessment for the Harrison Road Shoreline Stabilization, September 2003.

4. Installation Compatibility Use Zone Study Fort Eustis, Virginia, 1994.

5. A Natural Heritage Zoological Inventory of Fort Eustis, Virginia, October 1997.

6. Endangered Species Management Plan for the Bald Eagle US Army Transportation Center, Fort Eustis, Virginia, March 2004.

7. *Phragmites* in Virginia: A Management Symposium, December 2000.

8. Plant Survey and Herbarium Collection Final Report for Fort Eustis and Fort Story, Virginia, June 2001.

9. Environmental Assessment for Aerial Dispersal of Pesticide for Mosquito Control, Swampy Air Force Base, LA,

10. Phragmites australis (Common Reed) Control on Department of Defense Installations, June 1999.

11. Environmental Assessment for Control of Invasive Plant Species at Naval Air Station Oceana, Naval Air Station Oceana Dam Neck Annex, Naval Amphibious Base Little Creek, Naval Surface Warfare Center NSWC Dahlgren and Naval Station Norfolk, Virginia, July 2003.

12. Fort Eustis Integrated Pest Management Plan.

Appendix G

Consultation Letters and Regulatory Agency Comments.

Regulatory Review of the Environmental Assessment for Control of Phragmites at Fort Eustis

Reviewer	Response Received?	Issues Addressed ?
US EPA Region 3	Yes (included in Appendix G)	Yes (included in Appendix G)
USFWS	Yes (included in Appendix G)	No issues in response
NOAA	No response	
USGS	No response	
USDA, NRCS	No response	
VA/ DEQ	Yes (included in Appendix G)	No significant issues

DEPARTMENT OF THE ARMY
US ARMY TRANSPORTATION CENTER
Directorate of Public Works
1407 Washington Boulevard
Fort Eustis, VA 23604-5306

JUN 29 2004

REPLY TO ATTENTION OF:

Environmental and Natural Resources Division

Ms. Karen DelGrosso
USEPA, Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Ms. DelGrosso:

An Environmental Assessment (EA) for the Control of *Phragmites australis* at the US Army Transportation Center, Fort Eustis, Virginia has been prepared in accordance with the National Environmental Policy Act (NEPA) and its subsequent federal regulations. Request your organization review and provide comments as appropriate. Please find enclosed a copy of the EA on a compact disk.

This project comprises the aerial spraying of an herbicide containing glysophate as a means of controlling *Phragmites* to enhance the quality of the wetlands found at Fort Eustis. The EA describes the project, the affected environment and evaluates the environmental consequences of the project.

Please provide comments within 30 days of receipt of this letter.

Please send your comments to Mr. Timothy P. Christensen, US Army Transportation Center, ATTN: ATZF-PWE, Directorate of Public Works, Fort Eustis, VA 23604-5306. Please contact Mr. Tim Christensen at (757)878-2375 ext 23 or via email at Tim.Christensen@eustis.army.mil if you require additional information.

Sincerely,

Stephen A. McCall

Stephen A. McCall
Chief, Environmental and
Natural Resources Division

DEPARTMENT OF THE ARMY
US ARMY TRANSPORTATION CENTER
Directorate of Public Works
1407 Washington Boulevard
Fort Eustis, VA 23604-5306

REPLY TO ATTENTION OF:

JUN 29 2004

Environmental and Natural Resources Division

Ms. Karen Mayne
U.S. Fish and Wildlife Service
VA Field Office
Division of Ecological Services
6669 Short Lane
Gloucester, VA 23061

Dear Ms. Mayne:

An Environmental Assessment (EA) for the Control of *Phragmites australis* at the US Army Transportation Center, Fort Eustis, Virginia has been prepared in accordance with the National Environmental Policy Act (NEPA) and its subsequent federal regulations. Request your organization review and provide comments as appropriate. Please find enclosed a copy of the EA on a compact disk.

This project comprises the aerial spraying of an herbicide containing glysophate as a means of controlling *Phragmites* to enhance the quality of the wetlands found at Fort Eustis. The EA describes the project, the affected environment and evaluates the environmental consequences of the project.

Please provide comments within 30 days of receipt of this letter.

Please send your comments to Mr. Timothy P. Christensen, US Army Transportation Center, ATTN: ATZF-PWE, Directorate of Public Works, Fort Eustis, VA 23604-5306. Please contact Mr. Tim Christensen at (757)878-2375 ext 23 or via email at Tim.Christensen@eustis.army.mil if you require additional information.

Sincerely,

Stephen A. McCall
Chief, Environmental and
Natural Resources Division

DEPARTMENT OF THE ARMY
US ARMY TRANSPORTATION CENTER
Directorate of Public Works
1407 Washington Boulevard
Fort Eustis, VA 23604-5306

REPLY TO ATTENTION OF:

JUN 29 2004

Environmental and Natural Resources Division

Steve Kokkinakis
NOAA
PPI/SP (NEPA Coordinator)
Room 15603
1315 East West Highway
Silver Spring, MD 20910

Dear Mr. Kokkinakis:

An Environmental Assessment (EA) for the Control of *Phragmites australis* at the US Army Transportation Center, Fort Eustis, Virginia has been prepared in accordance with the National Environmental Policy Act (NEPA) and its subsequent federal regulations. Request your organization review and provide comments as appropriate. Please find enclosed a copy of the EA on a compact disk.

This project comprises the aerial spraying of an herbicide containing glysophate as a means of controlling *Phragmites* to enhance the quality of the wetlands found at Fort Eustis. The EA describes the project, the affected environment and evaluates the environmental consequences of the project.

Please provide comments within 30 days of receipt of this letter.

Please send your comments to Mr. Timothy P. Christensen, US Army Transportation Center, ATTN: ATZF-PWE, Directorate of Public Works, Fort Eustis, VA 23604-5306. Please contact Mr. Tim Christensen at (757)878-2375 ext 23 or via email at Tim.Christensen@eustis.army.mil if you require additional information.

Sincerely,

Stephen A. McCall

Stephen A. McCall
Chief, Environmental and
Natural Resources Division

DEPARTMENT OF THE ARMY
US ARMY TRANSPORTATION CENTER
Directorate of Public Works
1407 Washington Boulevard
Fort Eustis, VA 23604-5306

REPLY TO ATTENTION OF:

JUN 29 2004

Environmental and Natural Resources Division

Mr. Eugene Crabtree
USDA, NRCS
310 Shea Drive, Building 3
Chesapeake, VA 23320

Dear Mr. Crabtree:

An Environmental Assessment (EA) for the Control of *Phragmites australis* at the US Army Transportation Center, Fort Eustis, Virginia has been prepared in accordance with the National Environmental Policy Act (NEPA) and its subsequent federal regulations. Request your organization review and provide comments as appropriate. Please find enclosed a copy of the EA on a compact disk.

This project comprises the aerial spraying of an herbicide containing glysophate as a means of controlling *Phragmites* to enhance the quality of the wetlands found at Fort Eustis. The EA describes the project, the affected environment and evaluates the environmental consequences of the project.

Please provide comments within 30 days of receipt of this letter.

Please send your comments to Mr. Timothy P. Christensen, US Army Transportation Center. ATTN: ATZF-PWE, Directorate of Public Works, Fort Eustis, VA 23604-5306. Please contact Mr. Tim Christensen at (757)878-2375 ext 23 or via email at Tim.Christensen@eustis.army.mil if you require additional information.

Sincerely,

Stephen A. McCall
Chief, Environmental and
Natural Resources Division

DEPARTMENT OF THE ARMY
US ARMY TRANSPORTATION CENTER
Directorate of Public Works
1407 Washington Boulevard
Fort Eustis, VA 23604-5306

REPLY TO ATTENTION OF:

JUN 2 9 2004

Environmental and Natural Resources Division

Mr. Celso Puente
USGS
Water Resources Division MS 423
John W. Powell Building
12201 Sunrise Valley Drive
Reston, VA 20192

Dear Mr. Puente:

An Environmental Assessment (EA) for the Control of *Phragmites australis* at the US Army Transportation Center, Fort Eustis, Virginia has been prepared in accordance with the National Environmental Policy Act (NEPA) and its subsequent federal regulations. Request your organization review and provide comments as appropriate. Please find enclosed a copy of the EA on a compact disk.

This project comprises the aerial spraying of an herbicide containing glysophate as a means of controlling *Phragmites* to enhance the quality of the wetlands found at Fort Eustis. The EA describes the project, the affected environment and evaluates the environmental consequences of the project.

Please provide comments within 30 days of receipt of this letter.

Please send your comments to Mr. Timothy P. Christensen, US Army Transportation Center, ATTN: ATZF-PWE, Directorate of Public Works, Fort Eustis, VA 23604-5306. Please contact Mr. Tim Christensen at (757)878-2375 ext 23 or via email at Tim.Christensen@eustis.army.mil if you require additional information.

Sincerely,

Stephen A. McCall
Chief, Environmental and
Natural Resources Division

DEPARTMENT OF THE ARMY
US ARMY TRANSPORTATION CENTER
Directorate of Public Works
1407 Washington Boulevard
Fort Eustis, VA 23604-5306

REPLY TO ATTENTION OF:

JUN 29 2004

Environmental and Natural Resources Division

Ms. Ellie L. Irons
Virginia Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, VA 23219

Dear Ms. Irons:

An Environmental Assessment (EA) for the Control of *Phragmites australis* at the US Army Transportation Center, Fort Eustis, Virginia has been prepared in accordance with the National Environmental Policy Act (NEPA) and its subsequent federal regulations. Request your organization review and provide comments as appropriate. Please find enclosed 22 copies of the EA as required for staffing with other Commonwealth and local government agencies.

This project comprises the aerial spraying of an herbicide containing glysophate as a means of controlling *Phragmites* to enhance the quality of the wetlands found at Fort Eustis. The EA describes the project, the affected environment and evaluates the environmental consequences of the project.

Included within the EA is the Coastal Consistency Determination prepared in accordance with the Virginia Coastal Resource Management Program (please see Appendix D of the EA).

Please submit comments within 60 days of receipt of this letter.

Please send your comments to Mr. Timothy P. Christensen, US Army Transportation Center, ATTN: ATZF-PWE, Directorate of Public Works, Fort Eustis, VA 23604-5306. Please contact Mr. Tim Christensen at (757)878-2375 ext 23 or via email at Tim.Christensen@custis.army.mil if you require additional information.

Sincerely,

Stephen A. McCall
Chief, Environmental and
Natural Resources Division

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, VA 23061

July 9, 2004

Mr. Timothy P. Christensen
U.S. Army Transportation Center
ATZF-PWE, Directorate of Public Works
Fort Eustis, Virginia 23604-5306

Re: Environmental Assessment for the Control of *Phragmites australis*, Fort Eustis, City of Newport News, VA

Dear Mr. Christensen:

The U.S. Fish and Wildlife Service (Service) received your Environmental Assessment entitled "Controlling *Phragmites* at Fort Eustis" on July 8, 2004. The following comments are provided under provisions of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The U.S. Army proposes to conduct aerial herbicide spraying to control the non-native, invasive weed, *Phragmites australis*. Flights would occur in October of 2004, 2005, and 2006. There are several bald eagle (*Haliaeetus leucocephalus*) nests near the action area. October is outside the eagle breeding season in Virginia, so the nests will likely be unoccupied. The pilot should be informed about the eagle nests so that he can ensure he keeps enough distance to avoid damaging a nest. The Service believes that the proposed action is not likely to adversely affect federally listed species. The Service commends Fort Eustis in attempting to control exotic species.

If you have any questions, please contact Mr. Eric Davis at (804) 693-6694, extension 104.

Sincerely,

Karen L. Mayne

Karen L. Mayne
Supervisor
Virginia Field Office

DEPARTMENT OF THE ARMY
UNITED STATES ARMY TRANSPORTATION CENTER
FORT EUSTIS, VIRGINIA 23604-5000

REPLY TO
ATTENTION OF

SEP 16 2004

Environmental and Natural Resources Division

Mr. William Arguto
USEPA, Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Mr. Arguto:

Thank you reviewing our Environmental Assessment (EA) for the Control of *Phragmites australis* at the US Army Transportation Center, Fort Eustis, Virginia. This project proposes the aerial spray of the herbicide Rodeo of controlling this invasive plant species to enhance wetlands, improve aesthetics, improve use of training areas and enhance force protection. We offer the following responses to your questions and help clarify portions of the EA (please find attached a copy of your letter dated 28 Jul 04 for reference).

1. Use of Rodeo versus other herbicides based on plant resistance. Rodeo is the preferred herbicide for these operations based successful use in this geographical area by other federal and state agencies specifically to control *Phragmites*. Additionally, this is well documented in the literature and has worked well locally when used by other federal agencies. While we plan to use Rodeo this year in accordance with the published EA, any information that you can provide on other candidate herbicides as well as any studies on plant resistance would be of considerable value to our future control operations.

2. Timing of the aerial spraying designated for October. While the *Phragmites* plant is larger in October than May, October has been chosen for the application of the herbicide because *Phragmites* continues its growth into this time frame while the other plants (more desirable/native plants) have already begun senescence in preparation for the winter months. Subsequently, spraying in October further minimizes damage to desirable plants and yet effectively kills stands of *Phragmites*. Additionally, it further reduces risks of impacts to wildlife since many are migrating or beginning hibernation. This time frame has been used successfully by other agencies and is documented in the literature.

3. Chosen method of aerial spray alone can not guarantee the desired effect. Use of aerial spray in this project is not intended to or expected to completely eradicate the *Phragmites* existing at Fort Eustis. Rather the intent is to control the plant. Aerial spray provides the best area coverage, involves less time and is most cost-effective. Many areas at Fort Eustis containing stands of *Phragmites* are not accessible by vehicles or are difficult to access by man-packed spraying systems. These types of methods may be used to a limited extent and where feasible as mentioned in the Preferred Alternative on page 4 of the EA. Excavation is too resource-intensive and overall not feasible in terms of accessibility.

4. EA discussion on limited ground spray methods may be used to augment aerial spray. The discussion on ground spraying will be expanded. With regards to worker safety, all herbicide applicators (whether aerial or ground spraying) must be certified, licensed applicators and thus familiar with the proper techniques and hazards. The EA will indicate that product label and material safety data sheets must be followed.

5. EA does not discuss post-application of monitoring. Monitoring will be a routine post-application procedure, and a discussion on monitoring will be added to the document.

6. Coordination with Virginia Department of Environmental Quality (VA DEQ), US Fish & Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) to evaluate impacts to threatened and endangered species. The EA was sent to these agencies (as well as Natural Resources Conservation Service and US Geological Survey). All comments received are considered and incorporated as appropriate. These comments are included in an appendix to the final EA. The EA discusses those state species of concern. The document will be reviewed to ensure that this is clarified.

7. Discussion of impacts on bald eagle nesting from helicopter noise. Fort Eustis maintains a Bald Eagle Management Plan as required under the Endangered Species Act. The exclusion zones around the nest sites were included in this plan and are enforced at the installation. All aircraft (and personnel) to include the aerial spraying aircraft are restricted from these zones. Additionally, Fort Eustis has operated an active airfield for many years that consists of considerable helicopter activity. No adverse impacts on bald eagles have been identified. The aerial spraying will require approximately less than one work day and will avoid the exclusion zones by operating a considerable distance from these sites. Furthermore, eagle breeding and nesting occurs primarily between November through July. Subsequently, no impacts are expected. The narrative regarding bald eagles will be reviewed to ensure this is clarified. Additionally, this EA has been previously coordinated with the USFWS.

Once again, thank you for reviewing the document and providing feedback. Please contact Mr. Timothy Christensen at (757) 878-2375 ext 23 (or via email at Tim.Christensen@custis.army.mil) if you require additional information.

Sincerely,

Stephen A. McCall
Chief, Environmental and
Natural Resources Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

JUL 2 8 2004

Mr. Timothy P. Christensen
U.S. Army Transportation Center
ATTN: ATZF-PWE
Directorate of Public Works
Fort Eustis, VA 23604-5306

Re: Environmental Assessment for the Control of *Phragmites australis* at the U.S. Army Transportation Center, Fort Eustis, Virginia

Dear Mr. Christensen:

In accordance with the National Environmental Policy Act of 1969 and Section 309 of the Clean Air Act, the U.S. Environmental Protection Agency has reviewed the Environmental Assessment (EA) for the Control of *Phragmites australis* at the U.S. Army Transportation Center, Fort Eustis, VA. The Army proposes the aerial spraying of the herbicide Rodeo as a means of controlling *Phragmites* to enhance the quality of the wetlands found at Fort Eustis. EPA commends the Army for its description and information of the product proposed as well as its plans of notification of the aerial application. However, EPA offers the following comments for your consideration.

Alternatives

EPA is not convinced that the proposed alternative alone will provide the desired effect which is to control and/or eradicate roughly 500 acres of *Phragmites* on the Fort Eustis property. EPA questions whether the proposed alternative would be effective for the following reasons:

First, the herbicide, Rodeo, has been on the market for approximately 15-20 years. As a result, plants themselves build up a resistance to the agent which would then negate the effectiveness of the product. It is reasonable to assume that there is a more recent product on the market that may have a more positive effect. EPA suggests that newer herbicides be investigated as an alternative to the proposed product selected.

Second, the timing of the aerial spraying has been designated for October. By the month of October, the growth of the *Phragmites* will be considerably higher than if the application were to be applied in May. The desired effect would be for the herbicide to enter into and kill the root system which would be more likely to occur if the application took place when the plants were smaller than larger. Thus, it is not clear in the EA as to why October was the month chosen for

application. If migratory waterfowl is a concern, the dilution formula is not great enough to have a detrimental impact. This would also apply for possible drift to nearby trees as the quantity used may result only in leaf burning with no permanent damage to the forested areas. As a result, EPA questions the timing selected for the aerial spraying and suggests that a May/June application be considered.

Third, the chosen method of aerial spraying alone can not guarantee the desired effect. As a result, EPA suggests that a combination of all alternatives presented in the EA (including those discounted) would provide the most effective means of achieving the Army's desired result. Thus, a combination of aerial spraying, burning, and excavating are the methods suggested to ensure the result desired.

In addition to the aerial spraying, the EA states that limited ground spray methods may be used to augment aerial spray. A discussion of the ground spraying method would be helpful to assess environmental impacts. Also, worker safety guidelines for both air and ground should be presented.

The EA states that the purpose of the project is to "significantly reduce" existing stands of *Phragmites*. However, the EA does not discuss post application monitoring to determine the level of effectiveness and success. Monitoring is suggested to measure the degree of effectiveness to achieving the desired result.

Threatened and Endangered Species

EPA strongly encourages coordination with the VA Department of Environmental Quality, the U.S. Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration to evaluate impacts to threatened and endangered species. The EA addresses federal species of concern, but does not reference state species of concern. EPA questions whether state species of concern have been considered and the impact from the proposed project evaluated.

The EA states that two active bald eagle nest sites and one inactive nest site exist at Fort Eustis. Although the one quarter mile exclusion zone has been established around these sites, the EA does not discuss possible impact from noise as a result of the aircraft application process. Thus, EPA questions whether the noise from the operation of the aircraft will have a detrimental impact on the bald eagle. The impact of this activity on the bald eagle should be coordinated and evaluated with the U.S. Fish and Wildlife Service.

Thank you for providing EPA with the opportunity to review this project. If you need assistance in the future, the staff contact for the project is Karen DelGrosso; she can be reached at 215-814-2765.

Sincerely,

William Arguto
NEPA Team Leader

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 10009, Richmond, Virginia 23240
Fax (804) 698-4500 TDD (804) 698-4021
www.deq.state.va.us

Robert G. Burnley
Director

(804) 698-4000
1-800-592-5482

August 16, 2004

Mr. Timothy P. Christensen
US Army Transportation Center
Attn: ATZF-PWE
Directorate of Public Works
Fort Eustis, Virginia 23604-5306

RE: Draft Environmental Assessment and Consistency Determination for the Control of *Phragmites australis*, U.S. Army Transportation Center, Fort Eustis, Newport News, Virginia (DEQ 04-121F).

Dear Mr. Christensen:

The Commonwealth of Virginia has completed its review of the Draft Environmental Assessment (BA) and Consistency Determination for the above referenced project. The Department of Environmental Quality is responsible for coordinating Virginia's review of federal environmental documents and responding to appropriate federal officials on behalf of the Commonwealth. Also, as you are aware, pursuant to the Coastal Zone Management Act of 1972, as amended, federal actions that can have foreseeable effects on Virginia's coastal uses or resources must be conducted in a manner which is consistent, to the maximum extent practicable, with the Virginia Coastal Resources Management Program (VCP). The DEQ, as the lead agency for the VCP, is responsible for coordinating Virginia's review of federal consistency determinations. The following agencies, planning district commission, and locality took part in the review of this proposal:

Department of Environmental Quality
Department of Conservation and Recreation
Marine Resources Commission
Department of Agriculture and Consumer Services
Department of Forestry
City of Newport News
Hampton Roads Planning District Commission

The Department of Game and Inland Fisheries was also invited to comment.

Public Participation

As required under 15 CFR Chapter IX, Part 930, § 930.42, the public was invited to comment on the consistency determination. In this regard, a public notice was published on DEQ's website from July 7, 2004 to July 30, 2004. No comments were received in response to that notice.

Project Description

The Department of the Army has submitted an Environmental Assessment and federal consistency determination for the control of *Phragmites australis*, an invasive plant species, at the US Army Transportation Center, Fort Eustis, Newport News. Project activities include the aerial spraying of an herbicide containing glyphosate as a means of controlling *Phragmites* to enhance the quality of the wetlands at the facility. Aerial spray will be the primary means of reducing *Phragmites* stands; however, limited controlled burns and ground spray methods may be used to augment aerial spray. An estimated 500 acres of land containing *Phragmites* would be treated. One treatment per year for up to three years would occur in the month of October beginning in 2004. The herbicide would contain glyphosate as its active ingredient such as Rodeo, which is specifically designed for use against invasive plant species in aquatic environments. A quantity of 4-6 pints of herbicide would be used to treat one acre. Based on the EA, the Army determined that the proposed action would have no significant impact on the natural or human environment, and a Finding of No Significant Impact (FONSI) has been prepared pursuant to the National Environmental Policy Act (NEPA).

Environmental Impacts and Mitigation

1. Water Quality & Wetlands. The EA (page 7) notes that several surface water sources and associated tributaries exist adjacent to targeted spray sites, including Skiffes Creek, Eustis Lake, and the Warwick River. The herbicide glyphosate is a systemic herbicide and has no herbicidal or residual activity in the soil and therefore provides no lingering residual weed control (EA, page 1). The quantity of herbicide the Army would use is 4-6 pints per acre, once per year for up to three years (EA, page 10). To minimize the amount of herbicide that comes in direct contact with water sources, the Army intends to implement measures to prevent drift of herbicide beyond the targeted areas in accordance with manufacturer instructions. The applicator would be state certified and licensed for aerial pesticide application.

As described above, the intend of spraying herbicide is to eliminate an invasive plant species that is degrading the value, biodiversity and productivity of wetlands on the base. The consistency determination notes that a desirable wetland plant, *Spartina spp.* exists at various tidal and non-tidal locations targeted for herbicide treatment and is also expected to be destroyed. However, the Army anticipates that, in both tidal and non-tidal wetlands, the existing native seed bank reserve would recover and become re-established (EA, page 12).

DEQ determined that if the proposed activities are conducted with care and under controlled conditions, further review or authorization under the Virginia Water Protection Permit (VWPP) program and regulations is unnecessary. DEQ reviewers recommend applying glyphosate to the plant's foliage in late August through October, prior to the first frost. DEQ also recommends burning in late July, as winter and spring burning may in fact increase the densities of spring crops. Also, glyphosate must be mixed with clean or, if possible, distilled water because it binds tightly to sediments and is thus rendered non-toxic to plants (Lefor, pers. Comm. 1992). This limits its effectiveness but also may help prevent it from acting on plants that were not originally targeted. Rodeo should not be applied in windy conditions, as the spray drift beyond the targeted area rests with the applicator who must be state certified and licensed for such work. DEQ recommends that the Army limit herbicide application to wind speeds of less than five miles per hour rather than the stated two-ten miles per hour range proposed in the document. DEQ agrees that the herbicide application should follow all appropriate regulations administered by Virginia Department of Agriculture and Consumer Services (VDACS) and be applied using a licensed applicator. DEQ concurs with the consistency determination that there would be no adverse effects on surface water, wetland, or groundwater resources.

2. Chesapeake Bay Preservation Areas. The EA does not discuss proposed project activities with respect to project impacts on the Chesapeake Bay Preservation Act (Bay Act) and Chesapeake Bay Preservation Area Designation and Management Regulations (Regulations). However, the consistency determination (Appendix D) states that the proposed activity would have no effect on the Coastal Lands Management enforceable policy of the Virginia Coastal Resources Management Program (VCP) as administered by the Bay Act and Regulations.

DCR's Division of Chesapeake Bay Local Assistance (CBLA) determined that the proposed activity is permitted under the program. For additional information contact Alice Baird, DCR-CBLA at (804) 225-2307.

3. Air Pollution Control. The EA states (page 6) that the Hampton Roads area is currently an ozone maintenance area as declared by the Environmental Protection Agency (EPA) under the National Ambient air Quality Standards (NAAQS). The Army evaluated the project for General Conformity under *Section 176 of the Clean Air Act*. NO_x and VOC emissions from operation of the aircraft during the implementation of the project were calculated. The Army found the calculated emission levels well below the 100 ton threshold for NO_x and VOC. Furthermore, the Army considered the impacts to air quality from herbicide release and determined that no significant impacts to air quality would occur.

DEQ notes that Newport News is part of an ozone (O_3) non-attainment area and not a maintenance area as stated in the EA. Therefore, all precautions are to be taken to restrict the emissions of volatile organic compounds (VOCs) and oxides of nitrogen (NO_x). The Army should take all reasonable precautions to limit emissions of VOCs and NO_x, principally by controlling or limiting the burning of fossil fuels.

Furthermore, fugitive dust must be kept to a minimum by using applicable control methods outlined in 9 VAC 5-50-60 *et seq.* of the *Regulations for the Control and Abatement of Air Pollution.*

If project activities include the limited controlled burning of *Phragmites australis*, this activity must meet the requirements under 9 VAC 5-40-5600 *et seq.* of the *Regulations* for open burning, and it may require a permit. The *Regulations* provide for, but do not require, the local adoption of a model ordinance concerning open burning. The Army should contact Newport News officials to determine what local requirements, if any, exist. The model ordinance includes, but is not limited to, the following provisions:

- All reasonable effort shall be made to minimize the amount of material burned, with the number and size of *Phragmites* stands;
- The burning shall be at least 500 feet from any occupied building unless the occupants have given prior permission, other than a building located on the property on which the burning is conducted;
- The burning shall be conducted at the greatest distance practicable from highways and air fields;
- The burning shall be attended at all times and conducted to ensure the best possible combustion with a minimum of smoke being produced;
- The burning shall not be allowed to smolder beyond the minimum period of time necessary for the destruction of the materials; and
- The burning shall be conducted only when the prevailing winds are away from any city, town or built-up area.

DEQ recommends burning in late July, as winter and spring burning may in fact increase the densities of spring crops. Based on the plan and precautions described in the EA, DEQ concurs with the Army's Finding of No Significant Impact on air resources.

4. Solid and Hazardous Wastes and Hazardous Materials. According to the EA (page 10), hazardous materials handled and used for this project primarily involves the herbicide Rodeo. Other hazardous material would include fuel and aircraft petroleum oils, lubricants and engine fluids associated with the aircraft to be used for spraying. Based on product information, the Army determined that the herbicide Rodeo (glyphosate) would not pose physical hazard risks to personnel operating within Fort Eustis during, or after spraying operations. When handling the material, the Army intends to implement all appropriate spill prevention measures in accordance with the US Army Transportation Center Integrated Contingency Plan (USATC ICP) and US Army Transportation Center and Fort Eustis (TCFE) Regulation 200-6 (Environmental Management) (EA, page 11). The Army intends to use only the amount of product needed, and any remaining herbicide would be retained by the contractor for future use. No waste is expected to be generated by the Army and no new waste stream created. Finally, the EA states (page 12) that none of the areas to be treated contain Installation Restoration Program (IRP) sites.

However, some IRP site may be adjacent to target areas. The Army determined that appropriate drift prevention techniques should preclude the herbicide from affecting any IRP sites.

DEQ notes that the report did not address solid and hazardous waste issues and sites. Nor did the report include a search of waste-related databases. A cursory review of DEQ data files determined that the facility is under DEQ's Federal Facilities Installation Restoration Program (VA6210020321) and also contains a formerly used defense site (FUDS VA9799F7771). The web site http://www.epa.gov/enviro/html/rcris/rcris_query_java.html, may prove helpful to the Army in locating additional waste-related information from the Federal Facility identification number listed above. Additional comments from DEQ's Federal Facilities Section are included as an attachment to this response.

DEQ encourages facilities to implement pollution prevention principles, including the reduction, reuse and recycling of all wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

5. Herbicides. The use of herbicides should be in accordance with the principles of integrated management. The least toxic herbicides that are effective in controlling the target species should be used. Also, we recommend that the use of herbicides containing volatile organic compounds as their active ingredient be avoided to the maximum extent practicable in order to protect air quality. Otherwise, the use of these herbicides should be applied outside of the ozone season. Please contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information.

6. Natural Heritage Resources. According to the EA (page 17), two Conservation Sites have been designated at Fort Eustis: the North Seep Conservation Site; and the South Seep Conservation Site. Both sites were designated based on the identification of the interstitial amphipod which is a federal species of concern. The EA states that neither of these sites contained *Phragmites*.

DCR's Division of Natural Heritage (DNH) maintains a database (Biotics Data System) on natural heritage resources in Virginia. Natural heritage resources are defined as the habitat of rare, threatened, or endangered animal and plant species, unique or exemplary natural communities, and significant geologic formation. According to the information currently in its files, Biotics documents the presence of natural heritage resources in the project vicinity. However, du to the scope of the activity and the distance to the resources, DCR does not anticipate that this project would adversely impact these natural heritage resources.

The Virginia Department of Agriculture and Consumer Services (VDACS), which has regulatory authority to conserve rare and endangered plant and insect species through the Virginia Endangered Plant and Insect Species Act, has established a Memorandum of Agreement with the

Virginia Department of Conservation and Recreation (DCR). Under this Agreement DCR, in consultation with VDACS, represents VDACS in its comments and recommendations regarding the potential impact of reviewed projects or activities on state-listed plant and insect species. The current activity will not affect any state-listed threatened or endangered plants or insects.

Any absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks additional natural heritage resources. New and updated information is continually added to Biotics. Therefore, please contact DCR's Division of Natural Heritage at (804) 786-7951 if a significant amount of time passes before the project is implemented.

8. Wildlife Resources. According to the EA (page 13), of the wildlife species known to inhabit the facility, most are not thought to consume *Phragmites*. The EA states that no federally endangered species exist at Fort Eustis, and the American bald eagle is the only federally threatened species. Federal species of concern at the facility include: great egrets; yellow-crowned night herons; and ospreys. The Army believes the spraying will pose little or no threat to wildlife species.

The Department of Game and Inland Fisheries did not respond to our request for comments on the project. DGIF, as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species, but excluding listed insects (*Virginia Code* Title 29.1). DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 *et seq.*), and provides environmental analysis of projects or permit applications coordinated through the Department of Environmental Quality and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts. For more information, see the DGIF website at www.dgif.state.va.us or contact Ray Fernald at (804) 367-6913.

9. Forest Resources. Statements in the EA indicate (page 12) that a few trees associate with wetlands and adjacent to target areas are expected to be exposed to the herbicide. However, the Army believes few trees would be at risk due to procedures that would be employed to reduce drift, and because the trees would be entering dormancy at the time of spraying in October.

Review of the EA by the Department of Forestry (DOF) found that available data indicates no significant adverse forestry impact. For additional information, contact Michael Foreman, DOF at (434) 977-6555.

10. Historic Structures and Archaeological Resources. According to the EA (page 17), no excavation or alteration of existing structures is associated with the project. Most archeological

sites are not located within targeted areas. Therefore, the Army anticipates there would be no impact to cultural resources from project activities.

Section 106 of the National Historic and Preservation Act of 1966, as amended, requires that federal activities consider effects to properties that are listed or eligible for listing on the National Register of Historic Places. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources. If applicable, contact DHR. In the event that cultural resources are encountered during project activities, immediately contact Ms. Ethel Eaton, DHR, at (804) 367-2323.

11. Local Review Comments. The City of Newport News reviewed the EA and consistency determination and has no objection to the removal of invasive plant species. For additional information, contact Ed Maroney, City of Newport News at (757) 926-8411.

12. Regional Planning Review Comments. The Hampton Roads Planning District Commission reviewed the EA and consistency determination, and, after consultation with the City of Newport News, determined that the proposal is consistent with local and regional plans and policies. For additional information, contact Arthur Collins, HRPDC at (757) 420-8300.

Federal Consistency under the Coastal Zone Management Act

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities located inside or outside of Virginia's designated coastal management area that can have reasonably foreseeable effects on coastal resources or coastal uses must, to the maximum extent practicable, be implemented in a manner consistent with the Virginia Coastal Resources Management Program (VCP). The VCP consists of a network of programs administered by several agencies. The DEQ coordinates the review of federal consistency determinations with agencies administering the Enforceable and Advisory Policies of the VCP.

The EA includes a consistency determination and accompanying analysis. Based on the information submitted and the comments of reviewing agencies, we concur that the proposed activity is consistent with the Virginia Coastal Resources Management Program, provided that the Army complies with all requirements of applicable permits and other authorizations that may be required.

Regulatory and Coordination Needs

1. Water Quality and Wetlands. Coordination of project activities with regard to water quality and wetland impacts may be made with DEQ's Tidewater Regional Office, Harold Winer at (757) 518-2153.

2. Air Quality Regulations. This project may be subject to air regulations administered by the Department of Environmental Quality. Regulatory requirements that may apply to project activities relate to the project's location in an ozone non-attainment area. Furthermore, the project is subject to regulations addressing open burning. If project activities include the burning of *Phragmites australis*, this activity must meet the requirements under 9 VAC 5-40-5600 *et seq.* For more information the Army should contact City of Newport News officials to determine any local requirements for open burning and the DEQ-Tidewater Regional Office (TRO) for compliance with state regulatory requirements: For Newport News, contact the City Manager's Office at (757) 926-8411, and for DEQ-TRO, contact Harold Winer at (757) 518-2153.

3. Solid and Hazardous Wastes. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. For additional information, contact DEQ's Tidewater Regional Office, Harold Winer at (757) 518-2153.

4 Wildlife Resources. Due to the presence on site of the federally- and state-listed threatened Bald Eagle, we recommend that the Army coordinate project activities with the Virginia Department of Game and Inland Fisheries, Ray Fernald at (804) 367-6913 and the U.S. Fish and Wildlife Service (USFWS) to ensure compliance with protected species legislation.

5. Historic Resources. To ensure compliance with *Section 106 of the National Historic and Preservation Act of 1966*, the Army should coordinate project activities with the Virginia Department of Historic Resources. Please contact Ethel Eaton, DHR, at (804) 367-2323.

Thank you for the opportunity to review the draft Environmental Assessment and consistency determination for this undertaking. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4325 or John Fisher at (804) 698-4339 for clarification of these comments.

Sincerely,

Ellie Irons, Program Manager
Office of Environmental Impact Review

Enclosures

cc: Ellen Gilinsky, DEQ-WPS
Kotur S. Narasimhan, DEQ-ADA
Tom Modena, DEQ-ORP
Harold Winer, DEQ-TRO
Tony Watkinson, VMRC
Ray Fernald, DGIF
John Davy, DCR
Keith R. Tignor, VDACS
Catherine M. Harold, DCR-CBLA
Michael Foreman, DOF
Ed Maroney, City of Newport News
Arthur L. Collins, Hampton Roads PDC

RECEIVED

JUL 13 2004

DEQ-Office of Environmental Impact Review

MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY
Larry G. Lawson, P.E., Director

TO: John E. Fisher
Office of Environmental Impact Review

FROM: Michelle Henicheck (MH)
For: Ellen Gilinsky, Ph.D., PWS
Office of Wetlands and Water Protection and Compliance

DATE: July 12, 2004

SUBJECT: Environmental Assessment
Phragmites Control at the U.S. Army Transportation Center, Fort Eutis
04-121F

We have reviewed the information provided concerning the above-referenced project. The purpose of the project is to significantly reduce existing stands of *Phragmites* to improve the biodiversity of wetlands, prevent expansion into the Harrison Road stabilization project area and improve the land use value of affected areas at Fort Eutis. The US Army, Fort Eutis, proposes to conduct an aerial spray of stands of *Phragmites australis* at its installation with the intent of controlling the spread of the invasive species. Aerial spray will be the primary method of control, however, limited controlled burns and ground spray will be used to augment aerial spraying if necessary. According to the report, (Section I, Page 1) spraying would occur in the month of October 2004 and continue once a year for up to three years. In addition, a herbicide such as Rodeo will be used that is specifically designated to eradicate invasive species in aquatic environments. DEQ recommends applying glyphosate to the plant's foliage in late August through October, prior to the first frost. DEQ also recommends burning in late July, as winter and spring burning may in fact increase the densities of spring crops.

Glyphosate must be mixed with clean or, if possible, distilled water because it binds tightly to sediments and is thus rendered non-toxic to plants (Lefor, pers. Comm. 1992). This limits its effectiveness but also may help prevent it from acting on plants that were not originally targeted. Rodeo should not by applied in windy conditions, as the spray will drift. The report states (Section I, Page 1) that the responsibility to prevent spray drift beyond the targeted area rests with the applicator who must be state certified and licensed for such work. DEQ agrees that the herbicide application should follow all appropriate Virginia Department of Agricultural Consumer Services (VDACS) regulations including a licensed applicator.

The report concludes, and we concur, that there will be no adverse effects on surface water, wetland, or groundwater resources.

(over)

Should the size or scope of the project change, additional review may be necessary. We recommend strict adherence to erosion and stormwater management practices, and further encourage the project proponent to monitor construction activities to make certain that erosion and stormwater management practices are adequately preventing sediment and pollutant migration into adjacent surface waters, including wetlands. A VPDES stormwater general permit for construction activities will be required should the project disturb one or more acres of land.

Fisher,John
From: Winer,Harold
Sent: Wednesday, July 14, 2004 1:53 PM
To: Fisher,John
Cc: Parolari,Bert; Cash-Robertson,William; Everton,Roger
Subject: EIR #04-121F, Control of Phragmites australis at the U. S. Army Transportation Center

As requested, TRO staff have reviewed the supplied information and have the following comments:

Regarding VWP issues, if the proposed activities are conducted with care and under controlled conditions, further review or authorization under the Virginia Water Protection Permit program and regulations is unnecessary. However, we recommend that the Transportation Center limit herbicide application to wind speeds **less than 5 mph** rather than the stated 2-10 mph range proposed in the assessment.

Concerning Air Compliance, staff concurs with the proponent's Finding of No Significant Impact, contingent upon implementation of the project as described.

Additional comment: "Glyphosate" is misspelled as "glysophate" on page 1, 4th paragraph.

Thanks for the opportunity to comment.

Harold J. Winer
Compliance & Enforcement Manager
DEQ, Tidewater Regional Office
Phone - 757-518-2153 Fax - 757-518-2003
email - hjwiner@deq.virginia.gov

FSPR-ARMY-07-04

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

MR. JOHN E. FISHER
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319

RECEIVED
JUL 22 2004
DEQ-Office of Environmental Impact Review

John E. Fisher
JOHN E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

No comments. Permitted modification activity in buffer area.

(signed) Alice R.T. Bartol (date) July 19, 2004

(title) Environmental Specialist

(agency) DCR - Chesapeake Bay Local Assistance

PROJECT # 04-121F 8/98

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION
203 Governor Street
Richmond, Virginia 23219-2010
(804) 786-6124

MEMORANDUM

Date: 3 August 2004

To: John E. Fisher, Virginia Department of Environmental Quality

From: John R. Davy, Director, Planning & Recreation Resources

Subject: DEQ#04-121F: Control of *Phragmites australis* at the U. S. Army Transportation Center

The Department of Conservation and Recreation (DCR) functions to preserve and protect the environment of the Commonwealth of Virginia and advocate the wise use of its scenic, cultural, recreation and natural heritage resources. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, state unique or exemplary natural communities, significant geologic formations and similar features of scientific interest.

DCR has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Biotics documents the presence of natural heritage resources in the project vicinity. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources.

The Virginia Department of Agriculture and Consumer Services (VDACS), which has regulatory authority to conserve rare and endangered plant and insect species through the Virginia Endangered Plant and Insect Species Act, has established a Memorandum of Agreement with the Virginia Department of Conservation and Recreation (DCR). Under this Agreement DCR, in consultation with VDACS, represents VDACS in its comments and recommendations regarding the potential impact of reviewed projects or activities on state- listed plant and insect species. The current activity will not affect any state-listed threatened or endangered plants or insects.

Any absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks additional natural heritage resources. New and updated information is continually added to Biotics, please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

Thank you for the opportunity to offer comments.

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

MR. JOHN E. FISHER
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319

JOHN E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

Based upon the documentation provided concerning Consistency Determination/Certification for the Coastal Zone Management Program and Environmental Assessment related to the proposed Control of Phragmites australis at the U. S. Army Transportation Center in Newport News, it does not appear there will be any impacts to State-owned subaqueous land and therefore the project should not require any authorization from VMRC. Thank you for the opportunity to comment on this project.

(signed) Ben Stagg (date) 8-6-04

(title) Environmental Engineer

(agency) VMRC

PROJECT # 04-121F **8/98**

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: John E. Fisher DEQ - OEIA PROJECT NUMBER: 04 121 F

RECEIVED
JUL 19 2004
DEQ-Office of Environmental Impact Review

PROJECT TYPE: ☐ STATE EA / EIR / FONSI X FEDERAL EA / EIS ☐ SCC

X CONSISTENCY DETERMINATION/CERTIFICATION

PROJECT TITLE: CONTROL OF PHRAGMITES AUSTRALIS AT THE U. S. ARMY TRANSPORTATION CENTER

PROJECT SPONSOR: DOD / DEPARTMENT OF THE ARMY / FORT EUSTIS

PROJECT LOCATION: X OZONE NON ATTAINMENT AREA

REGULATORY REQUIREMENTSMAY BE APPLICABLE TO: ☐ CONSTRUCTION
X OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

1. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 E – STAGE I
2. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 F – STAGE II Vapor Recovery
3. ☐ 9 VAC 5-40-5490 et seq. – Asphalt Paving operations
4. X **9 VAC 5-40-5600 et seq. – Open Burning**
5. X **9 VAC 5-50-60 et seq. Fugitive Dust Emissions**
6. ☐ 9 VAC 5-50-130 et seq. - Odorous Emissions; Applicable to_____
7. ☐ 9 VAC 5-50-160 et seq. – Standards of Performance for Toxic Pollutants
8. ☐ 9 VAC 5-50-400 Subpart_____, Standards of Performance for New Stationary Sources, designates standards of performance for the_____
9. ☐ 9 VAC 5-80-10 et seq. of the regulations – Permits for Stationary Sources
10. ☐ 9 VAC 5-80-1700 et seq. Of the regulations – Major or Modified Sources located in PSD areas. This rule may be applicable to the _____
11. ☐ 9 VAC 5-80-2000 et seq. of the regulations – New and modified sources located in non-attainment areas
12. ☐ 9 VAC 5-80-800 et seq. Of the regulations – Operating Permits and exemptions. This rule may be applicable to _____

COMMENTS SPECIFIC TO THE PROJECT:

Being in an ozone non-attainment area, all precautions are to be taken to restrict the emissions of volatile organic compounds (VOC) and oxides of nitrogen (NOx).

K. S. Narasimhan

DATE: July 19, 2004

(Kotur S. Narasimhan)
Office of Air Data Analysis

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 10009, Richmond, Virginia 23240
Fax (804) 698-4500 TDD (804) 698-4021
www.deq.state.va.us

Robert G. Burnley
Director
(804) 698-4000
1-800-592-5482

MEMORANDUM

TO: John E. Fisher, Environmental Program Planner

FROM: ARB Allen Brockman, Waste Division Environmental Review Coordinator

DATE: July 15, 2004

COPIES: Sanjay Thirunagari, Waste Division Environmental Review Manager; Eric Salopek, file

SUBJECT: Environmental Assessment—Control of *Phragmites Australis* at the U.S. Army Transportation Center—Ft. Eustis, Newport News, Virginia; DEQ Project Code 04-121F

The Waste Division has completed its review of the Environmental Impact assessment for the control of *Phragmites australis* at the U.S. Army Transportation Center—Ft. Eustis, in Newport News, Virginia. We have the following comments concerning the waste issues associated with this project:

The report did not address solid and hazardous waste issues and sites. Nor did the report include a search of waste-related databases. The Waste Division staff performed a cursory review of its data files and determined that the facility is a Federal Facility (VA6210020321) and also contains a formerly used defense site (FUDS—VA9799F7771). The following website may prove helpful in locating additional information for the Federal Facility identification number: http://www.epa.gov/enviro/html/rcris/rcris_query_java.html . Eric Salopek of the Federal Facility staff in the Waste Division has been contacted for his review of this assessment and will reply in a separate memo, if he identifies any additional issues).

Any soil that is suspected of contamination or wastes that are generated during the excavation alternative (p. 3 of the report) activities must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-80); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and

the U.S. Department of Transportation Rules for Transportation of Hazardous materials, 49 CFR Parts 107.

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Allen Brockman at (804) 698-4468.

DEQ
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION OF WASTE PROGRAM COORDINATION

OFFICE OF REMEDIATION PROGRAMS

MEMORANDUM

TO: John E. Fisher; BIR

FROM: Eric J. Salopek; ORP

DATE: July 23, 2004

COPY: Allen Brockman; OWP, Milt Johnston, TRO, Durwood H. Willis; ORP, Ft. Eustis FFR File

SUBJECT: Environmental Assessment for Control of Phragmites australis at Ft. Eustis

The purpose of this memorandum is to respectfully provide comments to your office derived from my review of the referenced Ft. Eustis EA. In an effort to enhance the review of this memorandum, all comments will be correlated to the following format, listed below.

Section/Section Paragraph/Page

1. II. Purpose and Need/1/3: This narrative stated "Phragmites out competes native vegetation and does not serve as an adequate food source for most native wildlife." Please define/discuss what ecological effect(s) on the current population would possibly transpire with the short-term reduction of 500 acres of phragmites habitat. As a component to our question, please be cognizant that this office recognizes the importance of the reduction/elimination of an invasive plant species such as phragmites.

2. II. Alternatives Considered - Proposed Alternative/1/4: This narrative stated "In some cases…then limited ground application of the herbicide will be used." Due to the presence of a bald eagle nesting site (as defined in Figure 5) within close proximity to a defined phragmites application area, this office suggests that aerial spraying be restricted in favor of a hand-applied/manual process.

3. IV.2.B Water Quality - Drinking Water and Groundwater Withdrawal Wells/1/7: This narrative stated "Several groundwater withdrawal wells…contain non-potable water used for various purposes." Although the present use of the referenced groundwater withdrawal wells is for non-potable purposes, please be aware that should this function change to a potable status, then the following standard may apply at some point in the future. The EPA Region III risk-based concentration for glyphosate in tap water is 3,700 ug/l.

4. Figure 2/Page 9: In future EA submittal figures (in map view), this office recommends that a scale and north arrow be provided along with a clearer definition of groundwater withdrawal well locations.

5. IV.2.D. Hazardous Materials, Waste Generation, and Human Health and Safety/2/10: Please be aware that the MSDS for glyphosate identified a possible O_2 depletion in surface water, as a result of this chemical application.

6. IV.2.E.(1) Proposed Alternative/1/12: This section satisfactorily addresses airborne drift of the herbicide in relation to some contiguous IRP sites, however, please consider enhancing this language to include it's apparent relationship to both solubility and mobility.

7. Appendix B Installation Restoration Program Site Map: In future EA submittal figures, please consider providing a map overlay or full definition of targeted installation activity areas with current IRP sites.

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

MR.JOHN E. FISHER
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319

RECEIVED
JUL 28 2004
DEQ-Office of Environmental Impact Review

JOHN E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

Based on information in our database, no state or federal-listed endangered and threatened plant and insect species currently occurs within the project area. As stated in the FONSI proper precautions should be undertaken to prevent drift of herbicide onto protected plants.

(signed) (Keith R. Tignor) (date) July 23, 2004

(title) Endangered Species Coordinator

(agency) VDACS, Office of Plant and Pest Services

PROJECT # 04-121F **8/98**

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

MR.JOHN E. FISHER
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319

RECEIVED
JUL 22 2004
DEQ-Office of Environmental Impact Review

John E. Fisher

JOHN E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

Available data indicates no significant adverse forestry impact.
Date 7-20-04
Department of Forestry

(signed) J. Michael Fansler (date) 7-20-04
(title) For - Mgt
(agency) DOF

PROJECT # 04-121F **8/98**

City Of Newport News

Virginia 23607

Office Of The City Manager

2400 Washington Avenue
(757) 926-8411
Fax (757) 926-3503

July 27, 2004

Mr. John E. Fisher
Office of Environmental Impact Review
Virginia Department of Environmental Quality
629 East Main Street, Suite 644
Richmond, VA 23219

Dear Mr. Fisher:

The Department of Planning has reviewed the Environmental Assessment and Coastal Consistency Determination for the Control of Phragmites australis at the U.S. Army Transportation Center/Fort Eustis. We have no objection to the removal of these invasive plants.

Thank you for this opportunity to comment on the Environmental Assessment and Coastal Consistency Determination for the Control of Phragmites australis at the U.S. Army Transportation Center/Fort Eustis.

Sincerely,

Ed Maroney
City Manager

EM:kj
C:\Documents and Settings\kjames\My Documents\EIR Comments\EA CCD Control Phragmites australis at Fort Eustis.wpd

Copy to: Assistant City Manager, NAM
Director of Planning

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

LOUIS R. JONES, CHAIRMAN • JEANNE ZEIDLER, VICE CHAIR • JAMES O. MCREYNOLDS, TREASURER
ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

July 29, 2004

Mr. John E. Fisher
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, Virginia 23219

Re: Control of *Phragmites australis* at the U.S. Army Transportation Center DEQ #04-121F (ENV:GEN)

Dear Mr. Fisher:

Pursuant to your request of July 1, 2004, the staff of the Hampton Roads Planning District Commission has reviewed the Environmental Assessment for the proposed efforts to control the spread of *Phragmites australis* at Fort Eustis. We have contacted the City of Newport News concerning the project.

Based on this review, the proposal is consistent with local and regional plans and policies.

We appreciate the opportunity to review this project. If you have any questions, please do not hesitate to call.

Sincerely,

Arthur L. Collins
Executive Director/Secretary

MWL:fh

Copy: Ms. Kathy James-Webb, NN

Appendix H

Public Notice.

5519162

STATE OF VIRGINIA
CITY OF NEWPORT NEWS

This day personally appeared before the undersigned, a Notary Public in and for the State aforesaid, Rita Greene, and made oath as follows:

1. She is in the Tearsheet Department for The Daily Press, a newspaper published in the City of Newport News, Virginia.

2. The attached advertisement was published for 1 insertions in The Daily Press, commencing on

July 8, 2004 and ending on July 8, 2004.

Rita Greene
RITA GREENE

Subscribed and sworn before me

This 9 day of July 2004.

My commission expires:

December 31, 2006

Jay Breedlove
JAY BREEDLOVE
Notary Public

Appendix I

Public Comments.

ATZF-PWE

SUBJECT: Public Comments to the EA for Control of *Phragmites* at Fort Eustis

1. Copies of the draft Environmental Assessment for Control of *Phragmites* at Fort Eustis were provided to the Grissom Public Library (366 DeShazor Drive, Newport News, VA 23606), the Christopher Newport University (1 University Drive, , Newport News, VA 23606) and the Fort Eustis Library. These copies were intended for public review following an announcement in the Daily Press regarding their availability.

2. The announcement was published in the Daily Press on July 8, 2004 with a 30-day comment period.

3. No verbal or written comments were received.

TIMOTHY P. CHRISTENSEN
GS-12

Appendix F

References

References

1. A Natural Heritage Zoological Inventory of Fort Eustis, Virginia, October 1997.

2. Bald Eagle Management Plan, Joint Base Langley Eustis, Fort Eustis, 2012.

3. Environmental Assessment for Control of *Phragmites australis*, Fort Eustis, 2004.

4. Environmental Assessment for the Harrison Road Shoreline Stabilization, September 2003.

5. Environmental Assessment for Aerial Dispersal of Pesticide for Mosquito Control, Swampy Air Force Base, LA.

6. Environmental Assessment for Control of Invasive Plant Species at Naval Air Station Oceana, Naval Air Station Oceana Dam Neck Annex, Naval Amphibious Base Little Creek, Naval Surface Warfare Center NSWC Dahlgreen and Naval Station Norfolk, Virginia, July 2003.

7. Extension Toxicology Network. 1994. Cooperative Extension Offices of Cornell University, Michigan State University, Oregon State University and University of California at Davis.

8. Fort Eustis Integrated Natural Resources Management Plan.

9. Fort Eustis Integrated Pest Management Plan.

10. *Phragmites* in Virginia: A Management Symposium, December 2000.

11. *Phragmites australis* (Common Reed) Control on Department of Defense Installations, June 1999.

12. Plant Survey and Herbarium Collection Final Report for Fort Eustis and Fort Story, Virginia, June 2001.

13. Tu, M; C. Hurd and J.M. Randall. 2001. Weed control methods handbook. The Nature Conservancy.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

9 July 2012

MEMORANDUM FOR 733 CED/EE

FROM: 633 ABW/JA

SUBJECT: Legal Review of Supplemental Environmental Assessment for Aerial Spray of Common Reed

1. I reviewed the supplemental environmental assessment for the proposed aerial spray of common reed. There is no legal objection subject to the comments below and concurrence by the Environmental Law and Litigation Division (JACE).

a. Executive Summary

Change "Fort Eustis is now aligned with the U.S. Air Force under Langley Air Force Base (LAFB). Environmental impact analysis of projects must follow U.S. Air Force policies." to "Fort Eustis and Langley Air Force Base are now a joint base, Joint Base Langley-Eustis, with the Air Force assuming responsibility for environmental matters on the installation. As such, environmental impact analysis of projects must follow U.S. Air Force policies. "

b. 1.0, Description of the Project and para. 4.1.2

The SEA provides that "Fort Eustis constitutes approximately 7,900 acres of land of which an estimated 3,000 acres are tidal and non-tidal wetlands." The 2004 EA, however, provided that "Fort Eustis comprises 8,228 acres of land of which 2,212 acres are tidal and non-tidal wetlands." See para. I, Description of the Project and para. IV(b), Affected Environment and Environmental Consequences, of 2004 EA. Need to address the inconsistency.

c. 1.0, Description of the Project

The SEA provides that "An estimated 600 acres of common reed currently exists and would be treated." The 2004 EA, however, provided that "An estimated 500 acres of land containing Phragmites would be treated." Para. 4.1.10.1 confirms that there has been an increase in common reed acreage since 2004. Need to clarify why there has been an increase despite aerial spraying. Is the proposed treatment adequate?

d. 1.0, Description of the Project

The proposed action is to treat the areas once per year between August and October. Is this for an indefinite period of time? The 2004 EA was for once a year for a total of three years. See para. I, Description of the Project of 2004 EA. Was the last aerial spraying in 2007 (could

account for why there appears to be approximately 100 more acres of common reed now than in 2004, see subpara. (c) above)?

e. 5.0, Cumulative Impacts

The SEA provides that "This project is a short-term action specifically intended to improve the natural environment." How many years is the aerial spraying expected to occur? Will it still be considered short-term if it is expected to go beyond the three years addressed in the 2004.EA? See para. V, Cumulative Impacts, of 2004 EA.

2. POC is the undersigned at 757-878-5286 x 248.

SUSAN BOND, DAF
Attorney-Advisor